JAPANESE INDEPENDENT GAME DEVELOPMENT

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By

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Dedicated to Noah, the best cat.

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SUMMARY

This thesis examines independent game development in Japan, studied through tool-use and through the rhetorics and practices of the two main modes of independent game development in Japan: *doujin* and indie. I aim to illustrate how a particular technology (game engines) and a particular praxis-based ethos (indie) get deployed in a culturally and locally specific context, and the impact that each of them has, in turn, once integrated into that local context.

My first motivation is to provide an account of *doujin* and indie game development in Japan, and of the tools that people use to make games (the Unity game engine in particular) in that context. This has not been widely explored in English, and introducing these local considerations gives us ways to talk about Japanese games and game development that go beyond essentialist assertions.

My second motivation is to pull back the veil from processes that had appeared organic:

- In the case of Unity, this means that rather than just being a matter of selecting the best available tool, the deployment and adoption of tools is a highly artificial process; I show how the tools used in game production are themselves complex technologies that are socially co-constructed, *and* that this happens in a way that is culturally and locally contingent. This line of inquiry contributes to the body of work on the social construction of technological systems.

- In the case of “indie,” this means a demystification: indie in Japan does not simply signify any game development outside the mainstream, or outside of commercial production, but rather is an ethos and a practice that comes with particular rhetorics saddled upon it from distant, other indie assemblages.

I conclude that the main effect of the advent of indie ethos, methods, and tools in Japan is a reorientation towards a global market, and a revaluation of games as global commodities.

INTRODUCTION

Overview

This thesis is about the two main incarnations of independent game development in Japan: *doujin*[1] and *indie*[2]. Indie has, for the most part, been seen as a Western, unfamiliar phenomenon in Japan, but in the past few years it has morphed into something recognizable and adoptable by Japanese communities – in part helped by native-English-speaking expatriates who are helping foster indie scenes in Tokyo and Kyoto. Information on Japanese indies is readily available on the English-language web; in contrast, English-language explications of *doujin* are scarce, superficial, and often essentialist and reductive in their deployment of "Japaneseness" as a descriptor. The field of game studies has not seen a dedicated explication of these things in the Japanese sphere (and the few studies that do exist have more specialized purposes[3]).

This thesis has four sections, organized around four connected arguments:

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[1] *Doujin* (同人) is pronounced dough-jean, with a hard [dʒ]. It is also frequently romanized as *dojin* or *dōjin*.

[2] The Japanese word for indie is *indī* (インディー) or *indīzu* (インディーズ), from indie and indies respectively, without singular/plural distinction in either.

[3] Ito, Kenji. "Possibilities of Non-Commercial Games: The Case of Amateur Role Playing Games Designers in Japan." In *Worlds in Play: International Perspectives on Digital Games Research*, edited by Suzanne De Castell and Jennifer Jenson, 129-142. New York: Peter Lang Publishing, 2007.

The first chapter argues that "indie" has material, historical, cultural, linguistic contingencies that are particular to each context in which the concept is deployed; in other words, we use the same word, indie, to describe independent games and game development in the Anglophone sphere as well as in Japan, but this sameness belies the fact that they are two different phenomena, each particular to its circumstances. When we see this, we see that there are political ramifications to bringing indie-as-ethos and indie-as-production-mode into the Japanese game development world – ramifications that are often at odds with the rhetoric of indie as universal, context-agnostic, and emancipatory.

In the second chapter, I delineate *doujin* and indie game development in Japan. I have two purposes: not only to show what *doujin* and indie in Japan are, but to show the choices – and the stakes thereof – that are being made to produce a new culture of indie development in Japan. This chapter describes scenes as they currently exist, and presents brief studies of two titles – *Downwell* and one entry from the Touhou Project – that are emblematic of Japanese indie and *doujin.* Understanding these local particularities helps us counter hegemonic, exclusive constructions of independent video games and their history.

Third, I examine one grouping of actors bringing on the advent of indie, the Unity game engine and the activities of Unity Technologies Japan, to see how a company doesn't fall into an userbase but creates one; and I show how, in turn, the game engine shapes social conditions by orienting game developers towards commercial distribution, the Steam distribution platform, global

audiences, and the rhetorics and ways of framing their creations that had not heretofore been part of Japanese independent game development scenes. In this chapter, I set the stage by describing the roots of game engines and of the Japanese game industry at large. I then shed light on the history of Japanese developers *not* using game engines and on how that is changing. I argue that the pushing of Unity in Japan constitutes a consequential intervention into the many overlapping spheres of game development communities in this country, and I detail the means by which Unity is doing this.

Fourth, the conclusion of the thesis places a synthesis of all of the above into the broader context of global economic and cultural flows. I use theorist Koichi Iwabuchi's concept of cultural odor to show that Japanese indie developers, unlike *doujin*, create their works as global commodities. This analysis involves deconstructing the notion of Japaneseness as containing anything stable in itself; yet I argue that we need not discard the term, but rather ask how *doujin* and indies differently instrumentalize Japaneseness.

Motivations and contributions

Scholarly works on independent games and global games studies abound with calls for more situated, local stories of game development practices.[4] This

[4] For calls-to-action for local studies of Japanese game development, see Consalvo 2016, 218; Picard 2013, paragraphs 3-4; Picard and Pelletier-Gagnon 2015, 2; about local studies within global game studies generally, see Aslinger and Huntemann 2013, 4; for calls for indie game studies, see Parker 2013b, 8.

history of video game development is meant to answer those calls, but it has more targeted purposes than just to be a record of "how it really was." This thesis takes advantage of the intersections and divergences of its two dimensions – relation to indie and relation to Japan – and plays them off of each other to reveal more deeply how each one operates. For example, knowing how the the construct of indie has been formulated in non-Japanese spaces allows us a more nuanced understanding of how it operates in Japan. Part of the contribution of this thesis is to give us greater explanatory power, when talking about game development in Japan or independent game development anywhere, than simple reference to some immutable essence of indie or of Japaneseness.

This thesis uses discourse analysis, primarily in the first chapter, to situate indie as a culturally and temporally specific aesthetic project. The rest of the thesis follows other game scholars' approach of "studying videogames through their historically and materially specific context,"[5] inspired by Manuel DeLanda's assemblage theory. I analyze individual actors within larger social bodies, both human and non-human; the assumption that the mechanisms operating at an individual scale tell us something about larger social bodies is what I take from assemblage theory.

This thesis speaks to scholars in game studies. The third chapter – about the use and non-use of game engines in Japan, framed through the efforts of the creators of the Unity game engine – is also of interest to scholars in science,

[5] Joseph 2013, 92.

technology and society (STS), as it explicates the social construction of a technological system: it describes how an entire class of software scripts its users' behavior, and illuminates what one company in Japan is doing to invent its users. This last point is also a point of appeal for those in the game industry who make tools – it establishes that their audience is not a given, and then tells them how they might construct their audience in a very particular cultural context.

CHAPTER 1

WHAT IS INDIE?

1.1 Overview

In order to talk about the intervention of indie game development in Japan, we must first understand what indie game development is. To do this, in this chapter I use a methodology that is part discourse analysis, part assemblage theory.

I begin by outlining how game studies scholars have used the term indie, and then how game critics and game developers themselves conceptualize indie, in order to (later) paint a full picture of the discourse being assimilated by Japanese independent developers. After this, I outline critics' and scholars' critiques of this discourse. Finally, I specify what I mean when I use the terms independent and indie.

My aim is not to bottle any essence of indie (there is none), but rather to illustrate a distinct rhetoric of indie that originates in a historically specific and contingent assemblage. Highlighting the constructedness of this rhetoric allows us to circumvent its reification.

1.2 WAYS OF UNDERSTANDING INDIE

Indie has become one of the most recognizable classifiers for digital games and game development, and yet it's unclear just what indie *is*: "Are we talking about a social movement, a cultural scene, a fad, an ethics, a value

orientation, a social identity, an assertion of authority, a cultural politics, an accident, a new form of capitalism…?"[6] Does it makes sense to call media artifacts themselves indie, or is it a tension present in processes only – not a status but a direction to pursue[7] in relation to capital and the status quo?

Scholars have given us a number of ways of understanding what indie means in the world of games; in the rest of this section I'll survey this field and try to situate each in relation to my arguments.

Eric Zimmerman schematized independent games nearly fifteen years ago in his essay "Do Independent Games exist?"[8]. Analogizing indie games to indie film, Zimmerman isolates three axes of distinction:

- **Financial independence**: where the money for the production, distribution, and marketing come from
- **Independence from technological norms of the medium**: was it short or a feature? Did it have a shoestring budget or was it a multimillion dollar extravaganza?

[6] Simon, Bart. "Indie, Eh? Some Kind of Game Studies." *Loading… Journal of the Canadian Game Studies Association* 7, no. 11 (2013): 1.
[7] Pedercini, Paolo. "Toward Independence." *Molleindustria*, October 23, 2012. http://www.molleindustria.org/blog/toward-independence-indiecade-2012-microtalk/
[8] Zimmerman, Eric. "Do Independent Games Exist?" In *Game On: The History and Culture of Videogames,* edited by Lucien King, 120-129. London: Laurence King Publishing, 2002.

- **The spirit and culture of the film**: does it follow Hollywood formulas, or somehow question mainstream filmmaking?

Zimmerman only begins to problematize this positioning of indie games in relation to the mainstream. Later scholars such as Martin and Deuze[9] take this further, examining a range of uses of the term "indie games" in articles, posts, quotes from the most prominent industry journals, publications, and blogs; they identify "a single unifying thread" that is the predominant rhetoric of indie games within the industry: that an indie game cannot be created under the creative or financial control of the global corporate developers, publishers, and distributors. "In this idealized notion of independence, the connection between producer and consumer is allowed to exist 'naturally' outside the influence of commercial sponsorship and market orientation."[10] Ultimately, Martin and Deuze's argument is that "unlike in some other cultural fields, independence in games is about marketing, style, and appeals to authenticity, rather than the actual status of indie games in relation to the mainstream."[11]

Jahn-Sudmann (2008), too, questions whether independent games can be said to represent a challenge to mainstream games:

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[9] Martin, Chase Bowen and Mark Deuze. "The Independent Production of Culture: A Digital Games Case Study." *Games and Culture* 4, no. 3 (July 1, 2009): 276-295.

[10] Ibid., 277-278.

[11] Parker, Felan. "Indie Game Studies Year Eleven." *Proceedings of DiGRA 2013: DeFragging Game Studies* (2013b).

> … independent games may from time to time bear up against products of the dominant game industry when it comes to being innovative or creative and they may sometimes differ distinctly from the outward appearance of mainstream games – but this different does not include an oppositional logic that is *explicitly* recognizable as negation or challenge of mainstream game forms.[12]

Building on Martin and Deuze's argument that independence in games is about style and marketing, Lipkin's (2013) study of independent media and mainstream co-optation finds that an "indie style" emerged from the "particular political and economic conditions of the mid-2000s."[13]

Lipkin's argument is crucial to the understanding of indie game development that I am trying to construct in this section and the chapter that contains it: I posit that indie is not merely a position in relation to the mainstream in *any* given time and *any* given place. Rather, it is a style (in Lipkin's framing) or an ethos and mode of production (in my framing) that arose in a particular time and place – largely the English-speaking sphere in the mid-2000s. The material and discursive processes that constitute indie game development are portable and translatable into new spheres, but *not* without carrying the discourses and

[12] Jahn-Sudmann, Andreas. "Innovation NOT Opposition The Logic of Distinction of Independent Games." *Eludamos. Journal for Computer Game Culture* 2, no. 1 (2008): 5– 10.
[13] Parker 2013b, 4.

narratives that barnacled themselves (however impermanently) onto the indie boom.

I take the approaches of Joseph (2013)[14] and Parker (2013a)[15] as models for how to make sense of the networks of people and things that make up independent games in Japan. They draw on assemblage theory "to conceptualize indie game authorship, production, distribution, and reception as historically specific and contingent configurations of diverse human and non-human actors, as well as material and discursive processes."[16] Joseph describes what our analytical frame contributes to a study of particular configurations of how indie games are made:

> Assemblage theory opens up an analytical method for understanding how indie games are enmeshed and entangled with a variety of objects at different scales – from the flows and pressures of the global videogames industry all the way down to the affective relationship between an artist and their artwork. At all times the scale is shifting, from the local particularities to perceived global norms, without reducing any one element to the other.[17]

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[14] Joseph, Daniel. "The Toronto Indies: Some Assemblage Required." *Loading… Journal of the Canadian Game Studies Association* 7, no. 11 (2013): 92-105.
[15] Parker, Felan. "An Artworld for Artgames." *Loading… Journal of the Canadian Game Studies Association* 7, no. 11 (2013a): 41-60.
[16] Parker 2013b, 4.
[17] Joseph 2013, 95.

In the coming chapters I will look at independent game development in Japan at this full range of scales, from global commercial flows down to the individual developer's affective relationship with their work.

A few further perspectives on indie games need to be taken into account – specifically those that emphasize the role of community in independent game development. In his paper on the relationship between community and labor in independent game production, Guevara-Villalobos (2011) observes that "places of development converge with communitarian practices, and communitarian events have become spaces that boost creativity, learning and organise actively [sic] work time."[18] Westecott (2013) and Ruffino (2013), too, "trouble this emphasis on the *individual* as the locus of independence, pointing instead to the networks of cooperation (and, indeed, dependence) that support and sustain indie game development as an area of analysis and intervention."[19] Independence does not necessarily lie with the individual; this is one example of the values embedded in popular narratives of indie that we must question.

This interdependency among elements in an independent games assemblage is not limited to people; indeed, Joseph (2013) makes the point that, in Toronto, there would be no "independent" community without a city-sized

[18] Guevara-Villalobos, Orlando. "Cultures of Independent Game Production: Examining the Relationship Between Community and Labour." Hilversum, the Netherlands, 2011. http://www.digra.org/digital-library/authors/guevara-villalobos-orlando/.
[19] Parker 2013b, 4.

assemblage of organizations and people to foster close ties.[20] This holds true in Japan; regular local meetups have an important role in fostering communities of independent developers, as I demonstrate later in this thesis (section 2.4).

1.3 CRITIQUES OF INDIE

> "Back when Braid came out, there certainly had been independent games that people were paying attention to before that, but that year, 2008, saw a number of indie games that all came in the same year that were all at the same level of seriousness. And by that I don't mean, like, [serious face and clenched fist] serious-work-of-a-game, but that these are no longer tiny games that you just, [puts on voice] 'aw, it's some kid doing something cute,' right? It's like, **there's enough meat here to this game that you might care about this as much as you care about a AAA retail game.** So games that came out that year – N+, Castle Crashers, Braid, World of Goo – and that really changed the climate around what indie games are, and how much they're worth paying attention to. So maybe now, in 2012, indie games come out and people really come to them with the expectation that they're worth paying attention to and will notice more about them."

[20] Joseph 2013, 101-102.

Jonathan Blow, "How Mainstream Devs Are Getting It Wrong"[21]

Blow's statement is emblematic of a paradox of indies: they indulge in a rhetoric of being apart from the industry, and yet they aspire to *matter* in the same ways as AAA (large-budget, major-publisher) games. These aspirations are commercial (distributing as widely as possible, even in non-commercial exchanges as with freeware) and artistic[22].

This accords with Ruffino's argument that indie games complement mainstream and AAA games in the market, rather than (as its discourse would suggest) seek emancipation from that market. They are not the oppositional culture theorized in Herbert Marcuse's *One-Dimensional Man;* they are not the "radical other" in the face of an (imagined) mainstream culture, even if their outward appearance may differ[23]; and in fact, as Ruffino draws from Dovey and Kennedy (2006), "the 'indy' scene might actually offer a false promise of subversion, which in fact reinforces the positions of established players in the industry."[24]

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[21] GameSpot, "Jonathan Blow: How Mainstream Devs Are Getting It Wrong," YouTube, 8 March 2012, https://www.youtube.com/watch?v=I1Fg76c4Zfg. Emphasis mine.
[22] I use the term "artistic" not to wade into discussion of games-as-art, but rather because it's useful shorthand for cultural production that *matters* as in Blow's quote above *and* connects to the broader rhetoric of indie game development that I illustrate in later sections – the romantic image of the starving artist authoring an ambitious work.
[23] Jahn-Sudmann 2008, 10.
[24] Ruffino 2013, 108.

It's not only within the industry that the positions of established players get reinforced by indie's falsely emancipatory rhetoric; the high-profile indie developers themselves are lionized, and when they are, they become the story of indie. The problem here is not that other creators' stories are excluded *per se* – hardly avoidable when telling the story of a single developer or team of developer – but that the presentation of such an apparently homogenous (generally white, young, male, able-bodied, North American, English-speaking) selection of creators reinforces the narrative that indie game developers are of those types. Lisanne Pajot and James Swirsky's *Indie Game: the Movie*[25] is a 2012 documentary that presents the stories of three indie developers in parallel: Edmund McMillen and Tommy Refenes creating *Super Meat Boy*, Phil Fish making *Fez*, and Jonathan Blow, whose success with *Braid* plays counterpoint to the painful struggles of Fish, McMillen, and Refenes.

[25] Pajot, L. and Swirsky, J. (Directors). (2012). *Indie game: the movie* [Film]. Winnipeg: BlinkWorks.

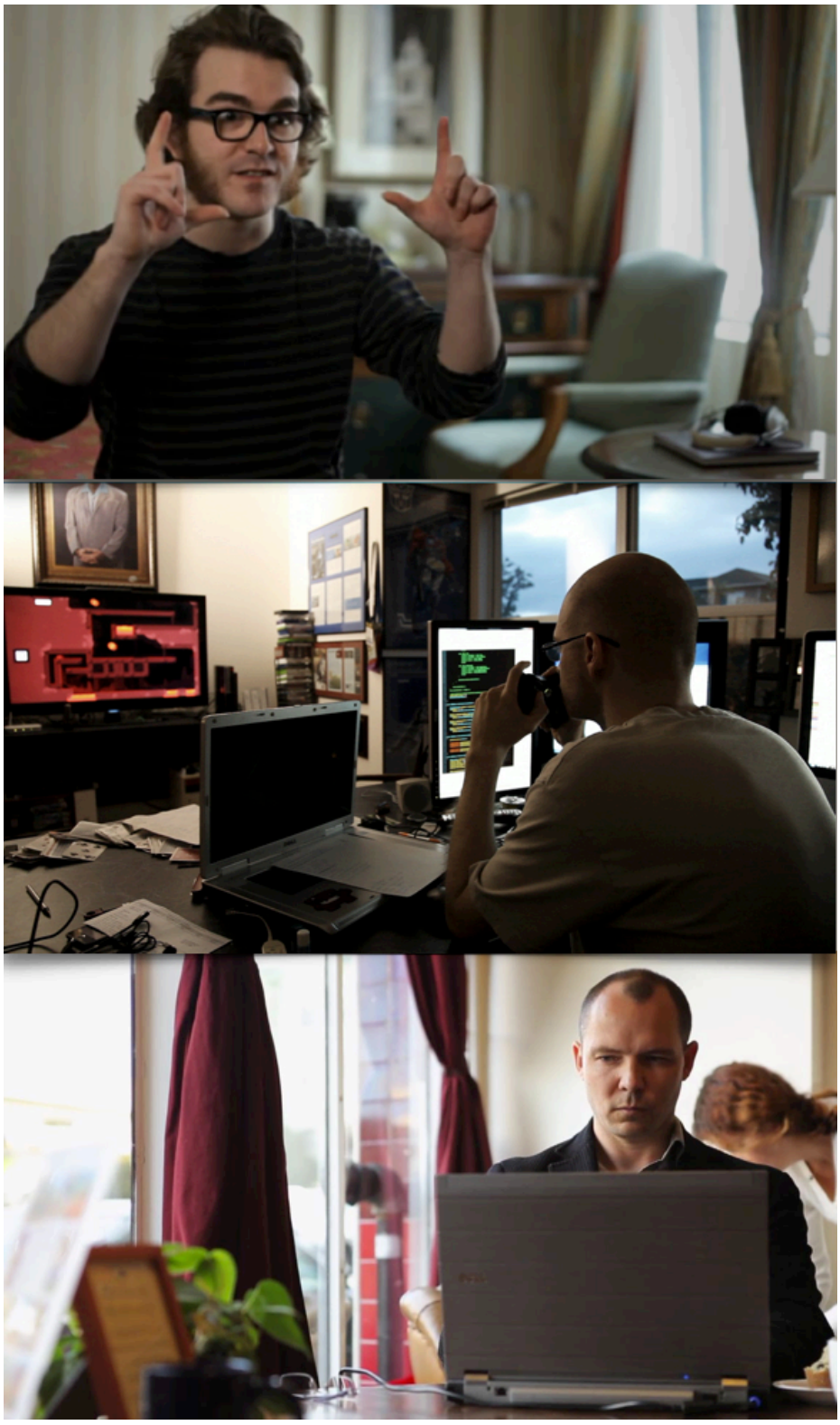

Figure 1. Indie Game: the Movie *(from top: Phil Fish, creator of Fez; Tommy Refenes, co-creator of Super Meat Boy; Jonathan Blow, creator of Braid)*

Calling it a film about "the winners," critic Liz Ryerson blasts the filmmakers for titling their film *Indie Game: The Movie* and yet only following the most high-profile stories; in so doing, she says, "the filmmakers were erasing the biggest swath of the truly interesting, risky stuff getting made in the independent game world."[26] She laments that the film helps solidify the culture of independent-game-developer-as-celebrity[27], and notes that although the film could have followed someone like increpare who has released over 250 games on his website without charging for them[28], instead the film looks at games that follow the old model of massive commercial success.

Why does this matter? Isn't it just sound storytelling for Pajot and Swirsky to have focused on a small number of dramatic cases, and doesn't their focus on "winners" raise the boats of everyone else in the indie sea? I would allow that many boats have been lifted by IGTM's tide, but I worry that documents like this one promote a particular, exclusive rhetoric of indie: that when we talk about indie games, "we're talking about a set of twenty or so particular games that look a certain way and play a certain way, which were made by an inner circle of celebrated indie game developers."[29]

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[26] Ryerson, Liz. "Indie Game: The Movie: The Review." *Midnight Resistance*. (June 17, 2012). http://midnightresistance.co.uk/articles/indie-game-movie-review

[27] Ryerson, Liz. "Taming the Inexplicable." *The New Inquiry.* (Feburary 19, 2016). http://thenewinquiry.com/essays/taming-the-inexplicable/

[28] Increpare is also known as Stephen Lavelle – see http://www.increpare.com/

[29] anthrophy, anna. "beyond 'indie'." *auntie pixelante.* (March 1, 2011). http://auntiepixelante.com/?p=960

This exclusivity has many inflections; perhaps the most obvious is gender. Based on their action research on workshops supporting the entry of women into the indie game community in Toronto, Fisher and Harvey write that "indie culture can serve to reify dominant narratives of the mainstream industry, including discourses that hinder female participation therein."[30] Indeed, *Indie Game: the Movie* doesn't feature women apart from those who play the role of wife or girlfriend assisting the male creator.[31]

I sympathize with Ryerson's critique, and although the rhetoric of indie that she outlines is only one among many, it's one that I see making forays into broader cultural conversations and – more to the point for this thesis – in independent game development circles in Japan.

1.4 WHAT I MEAN WHEN I SAY INDEPENDENT AND INDIE

Throughout this thesis, I use "independent" as a descriptive term in relation to (per Zimmerman's schema above) the economic, technological, and cultural qualities of a game's development. Independent game development is a catch-all that includes *doujin*, hobbyists, indies, and others without particular labels.

In contrast, when I use the term "indie," I use it specifically to refer to an ethos and mode of game development that arose in a particular time and place –

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[30] Fisher, Stephanie J., and Alison Harvey. "Intervention for Inclusivity: Gender Politics and Indie Game Development." *Loading... Journal of the Canadian Game Studies Association* 7, no. 11 (2013): 25.

[31] Ruffino 2013, 119.

largely the English-speaking sphere in the mid-2000s. The material and discursive processes that constitute indie game development are portable and translatable into new spheres, but *not* without carrying the discourses and narratives that barnacled themselves (however impermanently) onto the indie boom.

What are these narratives, exactly? Here is an unscientific list of typical ways of framing indie in the popular press and industry press, presented purposely as heterogeneous and self-contradictory:

- Now that game-making tools are democratized, games are made by everyone and for everyone. The typical indie game developer is YOU.
- The typical indie game developer is, in fact, Jonathan Blow or Phil Fish: a 20-something white man from North America working solo and expending his every resource, a Flaubertian "martyr of style."
- Indie game developers have commercial aspirations akin to those of AAA games.
- Indie games are global commodities, and their developers seek the broadest possible audience.
- Indie game developers have artistic aspirations.
- The indie game developer is demiurge-like creator; the game originates wholly from within the developer, and is an expression of the self. (This is in contrast with the *doujin* developers described in the next chapter, who usually make original games based on known intellectual property.)

Indie game development is, in each place where it exists, a historically specific and contingent assemblage; its characteristics are always particular to the time and place, and it has no particular essence. It's a curious circumstance, then, that Japan not only has been an active site of independent game development for decades, but also has now a nascent *indie* scene that seems to have inherited some of the historically-specific-and-contingent rhetoric of indie described above.

CHAPTER 2

DOUJIN AND INDIE IN THE JAPANESE CONTEXT

2.1 Overview

In this chapter, I shed light on the terms *doujin* and *indie* as they have been used in the Japanese context.

At first glance, this seems a straightforward task, and one in which a game studies audience has a head start: indie games in non-Japanese contexts are already well known, and "indie" has the benefit of analogy to other culture industries; and *doujin*, being a "known unknown," just needs to be described.

But understanding indie-in-Japan is more complex than translating one's existing understanding of indie into the Japanese sphere; indeed, consider that the word used is *indī* (インディー) – a loan word from English rather than any Japanese derivation from "independent game development" (*dokuritsu-kei gēmu kaihatsu*, 独立系ゲーム開発) – and the picture begins to emerge that I will embellish in this chapter: that Japan has in fact been an active site of independent game development for decades, but most of that development has taken the form of *doujin* games; and, reductively speaking, indie is a more recent Western import to Japan. Indie, as it is being constructed in Japan, isn't a merely descriptive designator for any type of independent game work, but (as in the English-language sphere) indicates a particular ethos and mode of game production. It comes with baggage from already-existing subcultures outside the Japanese sphere, such as certain commercial and artistic aspirations, styles of

community-formation, production methods including use of game engines, and distribution channels – all of which will be detailed in this chapter and the next.

Using methods rooted in assemblage theory touched on in the introduction, I begin this chapter by exploring *doujin* game development and its long historical roots, and then I describe a representative example of *doujin* game development. Following that, I delve into the more recent intervention of indie in Japan and describe its incipient scenes in Tokyo and Kyoto.

This analysis matters for three reasons: first, there are few English-language studies of indie and *doujin* game development in Japan in its historically and materially specific context[32], and popular analyses are almost always reductive and essentialist in how they apply the notion of Japaneseness.[33]

Second, it's important to note that there are political ramifications to bringing indie as an ethos and a production mode into the Japanese game development world – ramifications that are often at odds with indie's context-agnostic emancipatory rhetoric.

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[32] Those that exist have a more specialized purpose; see Ito 2007.

[33]For an example that hits almost every egregious note, see user cappazushi's comment from jrpgclub.com (qtd. in Schules, "*Kawaii* Japan", 64):

> "…Japan is still a relatively untouched culture due to its history of isolation and homogeny, which in some respects continue to this day. Because of that, recognizing some piece of art or media as 'Japanese' is not that difficult."

And finally, studying *doujin* game development provides us with a clear example of *other ways independent game development can be* that might not have occurred to people in the English-language sphere. There is nothing inevitable about how indie and other non-mainstream modes of game production have evolved in any context; this awareness bolsters our agency to determine what our own game development communities and practices look like.

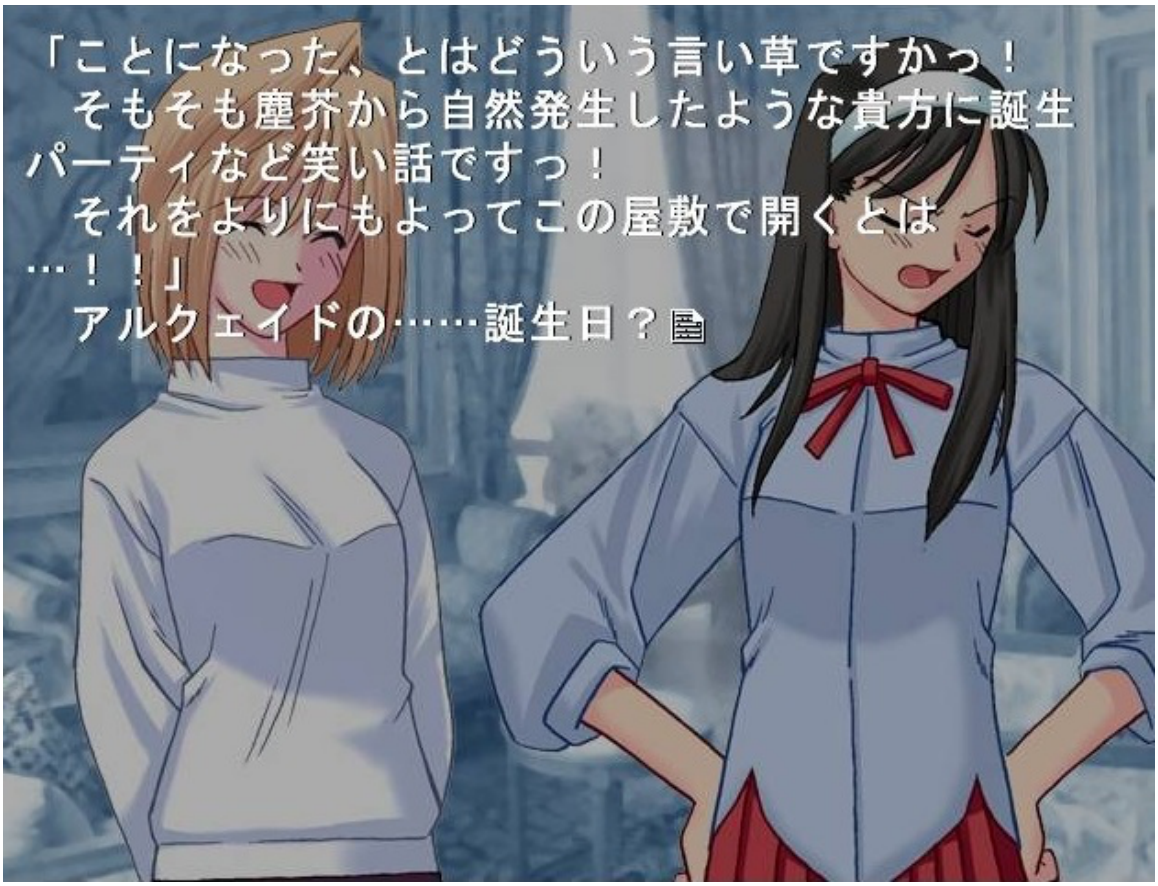

Figure 2. Screen capture from Tsukihime, *a game from the now-corporate doujin circle Type-Moon. Now explosively popular and frequently re-adapted,* Tsukihime *was first distributed in 300 copies for free on 3½" floppy disks at Comiket 56 in 1999.*[34]

[34] "月姫無料告知フロッピー" ("*Tsukihime* free announcement floppy")
http://www.typemoon.org/works/kokuti.html
Image credit en.wikipedia.org/wiki/Tsukihime -
/media/File:TsukihimeGameplayJP.jpg

2.2 WHAT ARE *DOUJIN* GAMES?

Doujin games (同人ゲーム) or *doujin soft*[35] (同人ソフト) are video games created by hobbyist developers, typically in Japan and for a Japanese audience, and usually based on pre-existing fandoms – for example, based on characters from popular anime (Japanese animation) and manga (comics). They are almost exclusively made for Windows PCs, and while digital distribution is increasingly being exploited, the majority of sales are made in hard copies at video game and anime conventions – the largest being Comiket (コミケット *Komiketto*, short for コミックマーケット *Komikku Maaketto*, Comic Market, also sometimes Romanized as Comiké) – but also at specialized stores that sell only fan-made works (manga, original animations, games, fan guides, music), such as Tora No Ana and Messe Sanoh.

Doujin games encompass a wide range of genres, but the majority of the market is erotic visual novels,[36] known as *eroge* (エロゲ or エロゲー, short for エロチックゲーム erotic game), which are interactive-fiction-style games – with subject matters ranging from coy and titillating to hardcore pornographic – played over a background of anime-style illustrations of the characters with whom the player interacts (see Figure 2). Boys' Love (BL) games (also known as *yaoi*), which revolve around male/male romance and sex, are a significant part of this market, and are generally made with an audience of adult women in mind.

[35] "Soft" is short for software.
[36] http://www.hardcoregaming101.net/doujingames/doujingames.htm

Not all genres of *doujin* games are erotic; in fact, many of the most highly regarded games and series are of the "visual novel" (ビジュアルノベル) genre – like the interactive-fiction-style games described above – which is subdivided into narrative-heavy, barely-interactive visual novels (abbreviated NVL) and problem- or puzzle-solving adventure games (abbreviated AVG or ADV). Another popular genre represented most famously by the Touhou Project (which I examine in section 2.3) is *danmaku* (弾幕 "barrage"), or "bullet hell" shoot-'em-up games. *Danmaku* games require the player to dodge overwhelming numbers of bullets, often while the player's ship is firing innumerable bullets itself. Since ammunition is typically unlimited and it is difficult even to be able to see where one's bullets are going, the emphasis of gameplay in *danmaku* games is often on weaving the player's ship between the curtains of bullets and trying to manipulate the focus of enemies' fire, rather than trying to shoot anything oneself.

For players in the English-language sphere, it isn't easy to obtain and run most *doujin* games, given that many are sold in hard copy only. Digital distribution makes this easier, somewhat, but it can still be necessary to go to extreme lengths to get natively Japanese applications to run (changing the language of your operating system, for example[37]).

[37] http://www.hardcoregaming101.net/doujingames/doujingames2.htm

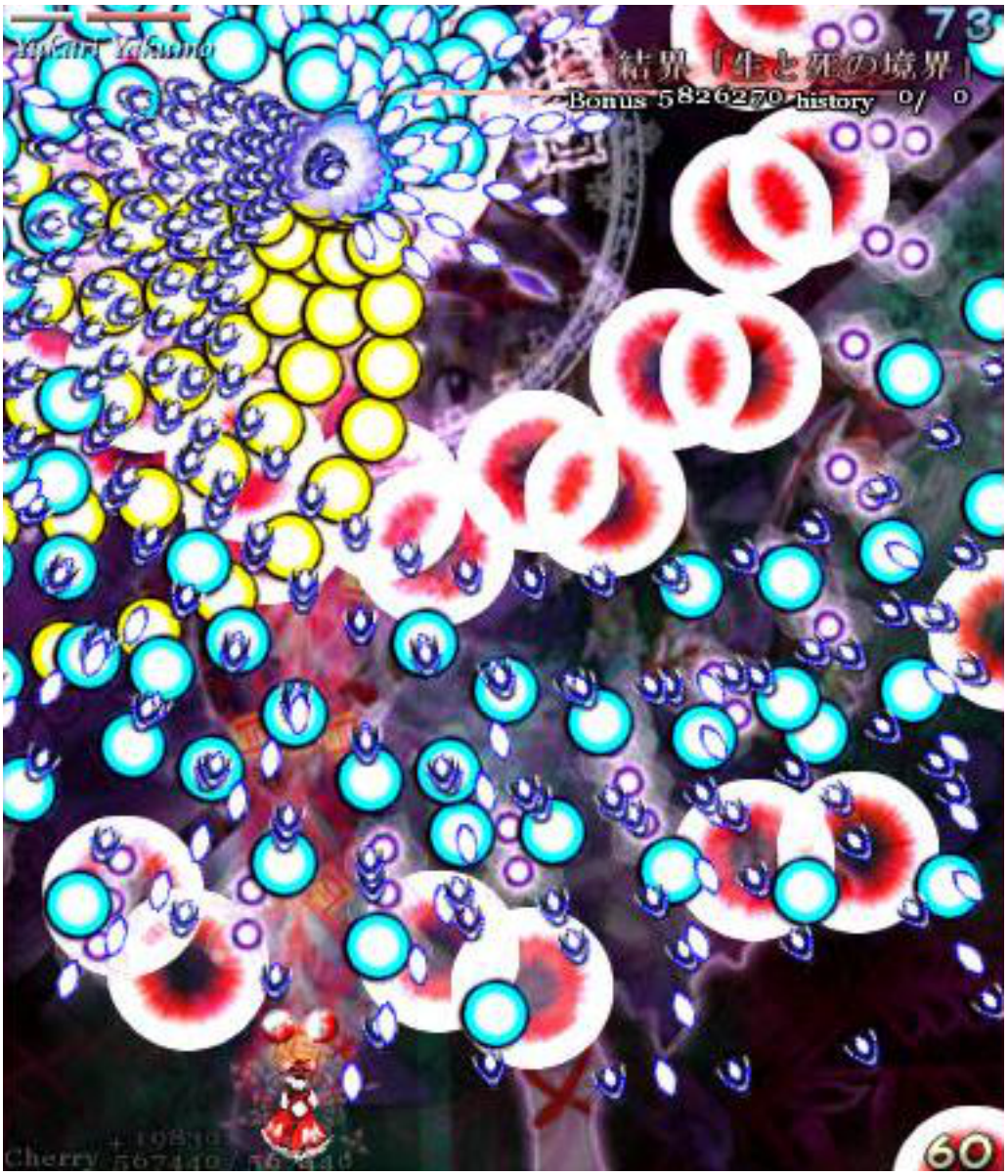

Figure 3. Perfect Cherry Blossom, a danmaku *title that is part of the Touhou Project series of games. Source: http://touhou.wikia.com/wiki/Danmaku?file=Danmaku.png*

2.2.1 History of the term

In order to understand how *doujin* software had a ready-made cultural niche that allowed it to flourish as a form in the seeming absence of infrastructures to support independent game development, it's necessary to delve a bit into the history of the term itself. *Doujin*, on its own, is sometimes translated as coterie; it is a group of people who share a hobby or interest. The term came into its current sense during the Meiji period (1868-1912), a time of great flux and re-definition for Japanese literary society – in which, it should be noted, women had an important presence from the classical period onwards for peculiar historical reasons related to the evolution of the Japanese writing systems – under the broader societal pressures of industrialization and Westernization. Coteries formed, often headed by women, and created their own self-published magazines known as *doujin* (or *dounin*) *zasshi*, which contributed to the development of prewar Japanese literature and which continue to play a role in Japan's literary world today.

From the *doujin zasshi* of the Meiji period grew the tradition of *doujinshi*, which are, generally speaking, "amateur publications, written, illustrated, designed, published, and marketed by fans, usually employing manga-style art and semiotics."[38] *Doujinshi* make up an enormous industry on their own,[39] and

[38] Lam, Fan-Yi. "Comic Market: How the World's Biggest Amateur Comic Fair Shaped Japanese *Dōjinshi* Culture." *Mechademia* Vol. 5 (November 2010): 232-248.

[39] Despite commercial sale generally being low-priority in *doujin* culture, an NRI report cited in Aoyama and Izushi 2008 (p. 8) put the industry at 1.72 million

doujin games are their vassal: the brick-and-mortar stores that do sell *doujin* games are, in fact, just *doujinshi* stores large enough to also have game sections. The biggest[40] fan convention in Japan, Comiket, is largely a *doujinshi* convention that also has games.

It's significant how much of the history of Comic Market and *doujin* creativity grew from systems of media production and consumption made by and for women. The attendance of Comic Market, it seems, has even grown and shrunk and fluctuated in its demographics often because of the gender-related appeal of different genres prevalent in a given year:

> The Comic Market was dominated by women from the beginning (90 percent of its first participants were female), but in 1981, thanks to lolicon, male participants numbered the same as female participants for the first time in Comike's history.[41]

Yet through the first half of the 1980s, many first-generation Comiket participants had gotten jobs and were then raising children, leading to a major dip in attendance. *Doujinshi* was saved from near extinction by one anime and its fandom: Captain Tsubasa. Attendance at Comiket nearly *doubled* in the winter of

---

hobbyist consumers as of 2004, with estimated impact of Y410 billion (US$3.57 billion at Y115/dollar).

[40] "It is not only by a wide margin the biggest dōjinshi event in Japan (and therefore related to many subcultural and independent media in Japan) … it is also the oldest such event, and the one most famous in the mass media" (Lam 2010, 244).

[41] Lam 2010, 236.

1987 when *yaoi* (male/male romance) took off thanks to *doujinshi* based on Captain Tsubasa, With this, the majority of attendees were again women.[42]

Regarding women's attendance as creators at Comiket, John Szczepeniak wrote the following:

> Contrary to popular conceptions, even today the majority of doujin creators selling work at Comiket are women, around 60% as of Comiket #84 (summer 2013). Historically speaking, female doujin creators at Comiket have generally outnumbered their male counterparts by more than 2:1. The demographics likely skew towards men for doujin games and software in particular, but it's important to note that a huge chunk of overall doujin output, even the really hardcore stuff, is actually created and consumed by women.[43]

2.2.2 Why *doujin* games have flourished

Doujin games have flourished in Japan because they fit into the flows for production, distribution, and consumption already powerfully established by *doujinshi*. They profit from the assemblage that has been at work for decades: the enormous conventions that allow distribution and formation of personal connections; the tacit agreement that *doujin* creators have with IP holders that

[42] Ibid., 237.
[43] Szczepeniak, John. "The Untold History of Japanese Game Developers." SMG Szczepeniak: 2014, 324.

unlicensed usage of their IP – characters, universes – benefits all parties; the centuries-old conventions of coteries creating works that appeal to their own interests without regard for broader commercial sale or cultural appeal.

According to Picard (2013), *doujin* games emerged in early 1980s from PC market, initially distributed by mail order on cassette tapes or floppy disks, or even sometimes "on line" via telephone modem. In the mid-1980s, *doujin* creators started attending and distributing their works at Comiket. Formation of *doujin* circles helped popularize genres such as *ren'ai geemu* (love or dating sims), *galge* (girl games), and visual novels. These early *doujin* game developers, furthermore, had an easy time successfully distributing their works on physical media because they were entering a scene in which the distribution and consumption of physical entertainment media was expected – for example, printed manga that are far more ubiquitous and universally consumed than comics in the US – and because their practice of creating *doujin* games was predicated on the strong tradition of *doujinshi* authorship based on known fandoms and distribution at conventions.[44] Community is another aspect of the network of *doujin* games that drives their strength as a practice: "Both the people who make *doujin* games and those who buy them, it's often the same people each year. It's like a community."[45]

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[44] Picard, Martin. "The Foundation of *Geemu*: A Brief History of Early Japanese Video Games." *Game Studies: The International Journal of Computer Game Research*, vol. 13(2) (December 2013).

[45] Szczepeniak 2014, 323.

2.2.3 Where can we find *doujin* games?

Doujin creators sell or freely distribute their works at conventions such as the semiannual Comiket, and stores such as Tora No Ana and Messe Sanoh in Akihabara and other neighborhoods of Tokyo. Digital distribution sites such as www.dlsite.com and www.vector.co.jp host tens of thousands of *doujin-soft* works. There are even a few publishers releasing originally-in-Japanese PC-platform *doujin* games in English, usually on Steam: Playism, Nyu Media, Sekai Project, and Carpe Fulgur.

And yet, often the answer to the question that heads this section – "where can we find *doujin* games?" – is that we *can't*. There are barriers for people within Japan as well as outside: domestically, the games are not marketed outside of existing enthusiast communities, and even those who are aware of them may not have the means to play them, since *doujin* games are heavily PC-based and the PC has a limited install base as a gaming platform in Japan. Outside of Japan, language is a barrier, given the very language-centric nature of certain *doujin* genres (e.g. visual novel). The stubbornly physical-distribution-based network, too, is a problem unless you can get yourself to one of the large conventions in Japan. Yet another factor is a lack of familiarity among English speakers with many *doujin* genres, and how culturally "odorous"[46] they are.

Part of the reason that PC has such a limited install base as a gaming platform in Japan is that publishers have long protected their games from having

[46] Iwabuchi 2002, 28.

PC as an available platform, even when the option exists in other regions – and they have carried this over into contemporary distribution platforms by, for example, blocking their games from being sold on Steam. Capcom, Sega, Konami are among those with a partial or full purchase block in Japan (along with Western publishers EA and Rockstar) – the only Japanese publisher which allows full access is Square-Enix/Eidos.[47] Skepticism towards crowdfunding, Kickstarter, Steam Greenlight, and the Steam service in general[48] are all circumstantial barriers prevent ready exchange between Japanese and Anglophone spheres.

These worlds are siloed, both for game consumers and developers; thus we find members of indie game developer communities in the English-speaking sphere puzzling over a forum post titled, "Where are the Japanese?" – asking why, despite the fact that independent game making is huge in Japan, none of the forum members seem to be Japanese.[49]

[47] Current as of 2010: http://forums.steampowered.com/forums/showthread.php?t=1420882
[48] https://web.archive.org/web/20130321010016/http://www.edge-online.com/features/something-about-japan-the-indie-verdict-after-valve-pitches-steam-at-bitsummit/2/
[49] https://forums.tigsource.com/index.php?topic=6886.0)

2.3 SNAPSHOT OF A *DOUJIN* GAME

The fifteenth game in the Touhou Project series, released August 14, 2015, is called 東方紺珠伝 *[Touhou kanjuden] ~ Legacy of Lunatic Kingdom*.

Figure 4. 東方紺珠伝 [Touhou kanjuden] ~ Legacy of Lunatic Kingdom by Team Shanghai Alice.

It is a single-player vertically-scrolling shoot 'em up game of the *danmaku* type, and it has a story though the story is mostly inscrutable. I play as a flying girl named Reimu Hakurei, and it is clear that she, as well as most of the boss characters – many of them also girls – are established characters whose names, backstories, and mythological associations would be known to fans of the series.

These characters likely also appear in thousands of other Touhou-derived *doujin* works, since Touhou holds the unique position of being the subject of derivative works created by *thousands* of *doujin* circles every Comiket; Touhou

has been counted as its own genre apart from the main *doujin soft* category since Comiket 76 in August 2009.

Another notable feature of the Touhou Project is that its world is heavily imbued with Shintoism and Japanese folklore, with a smattering of the non-Japanese occult. Its somewhat occult setting ("Land of Illusions") resembles feudal Japan, but is populated by magical humans and by many kinds of *youkai* (supernatural monsters) – not only the well-known *kappa*, *tengu*, and *kirin*, but also *tsukumogami* ("tool kami") – possessed trickster tools – and *tsurube-otoshi* ("dropping like a well bucket") – disembodied heads that hide in treetops and tumble down to crush and eat passersby below.

The setting and characters of the Touhou Project reveal an important quality of *doujin* games: that they unabashedly do *not* efface themselves of their apparent Japaneseness – cultural odor, in the terminology of Koichi Iwabuchi – unlike indie games, which often *do* scrub themselves of their cultural odor in order to be viable products in a global marketplace.

2.4 THE INDIE INTERVENTION IN JAPAN

There are now burgeoning indie game development scenes in Tokyo and Kyoto; this section identifies some actors driving this growth, and analyzes the underlying values that differentiate the indie game development from the scenes into which it enters.

The indie scenes in Japan are relatively young – when I attended the monthly meetup Tokyo Indies in 2014, it was only their fourth-ever meeting. They form community through social media, through regular game expos hosted by the International Game Developers Association (IGDA) Japan, through frequent regional game jams, and – most prominently – through regular local meetups, often at bars, and largely organized by English-speaking expatriates. These meetups intentionally take after the model of indie game developer communities in many cities in the U.S.: for example, Boston-born expat Alvin Phu formed the first of these regular meetups, Tokyo Indies, by copying the organizational model of the long-established Boston Indies meetup.[50] Many of the groups in Figure 5, in turn, followed the model of Tokyo Indies:

Meetup name	Frequency	Organized by
Tokyo Indies	monthly	Alvin Phu (US)
Tokyo GameDev Drink Up	weekly	Adelle Bueno (Canada)
Picotachi (Tokyo)	semi-regular	Joseph White (NZ)
Otaru Nomikai (Tokyo)	weekly	John Ricciardi (US)
Kyoto Indie Meetup	monthly	Sagar Patel (US), Jetha Chan (AU), Ryosuke Nagao (JA)
Dylan and friends (Kyoto)	semi-regular	Dylan Cuthbert (UK)

Figure 5. Game development meetups throughout Japan. Most are oriented toward indies.

[50] Conversation, November 4, 2014.

BitSummit, the five-years-running indie games festival in Kyoto, is also run by a U.S. expat, James Mielke. A survey of the games featured at BitSummit reveals that most of the developers are not from Japan,[51] but in his GDC talk in 2014, Mielke made clear that a priority of BitSummit is to educate Japanese developers to be as globally aware and as economically and artistically ambitious as Western indies. Rather than being a space for Japanese developers to showcase their work, it is a space for Western indies to show the Japanese how it's done. Pointing out Japanese developers' lack of exposure to Steam (a "mystery"), the absence of any superstars, and dearth of originality, Mielke chalks their apparent lag to a "village mentality" (*muraishiki*) endemic among them. *This*, he says, is why they created BitSummit. He says:

> We choose our partners to make sure that they have something to offer and educate the Japanese developer about. At the first BitSummit, we invited Valve because we wanted to explain to people what the Steam platform was about, and why that could help them. … This year we put Kickstarter in the room.[52]

[51] See http://www.igdamanila.org/bitsummit-2015-return-of-the-indies/ , or any of the featured games lists moving backwards from 2016: http://bitsummit.org/2016/games/

[52] Mielke, James. "Exploring the Human Element of BitSummit." GDC, March 17-21 2014. http://www.gdcvault.com/play/1020659/Exploring-the-Human-Element-Of

In light of the civilization-bearing subtext to Mielke's words, it's worth examining here what underlying values differentiate the indie game development from *doujin* and other Japanese game development. IGDA Japan head Kenji Ono puts *professionalization* as the characteristic that divides indie from *doujin*, also noting that indie game developers' ideas "come from inside."[53] His words are echoed by Onion Games developer Yoshiro Kimura as interviewed in the documentary *Branching Paths* (Figure 6): "Look, what's important for indies is that you make the game you want to make."

Figure 6. Yoshiro Kimura, indie game developer at Onion Games, opines on what makes an indie. Source: still from the documentary Branching Paths (2016).

This insistence on the purity of the artists' expression finds its *doujin* foil in the nonchalance of ZUN – maker of the Touhou Project – and Yoko, another

[53] Conversation, November 3, 2014.

doujin artist, who in this roundtable discussion state their lack of interest in monetization:

> [Interviewer:]—On the other hand, with visual novels you have someone like Type Moon, who started out as a doujin but then incorporated and now sells commercially. As a shooting game maker, do you feel envious of that?
>
> ZUN: Not me. I've already turned down such offers. (laughs)
>
> Yoko: I've refused them as well.[54]

Games researchers Nobushige Hichibe and Ema Tanaka surveyed 76 *doujin* game developers and found results that echo what is said here: that *doujin* game developers are hobbyists, because the majority of them create games not to make a living but to enjoy the act of making a game itself. Some *doujin* developers have been able to earn a living since the 1990s, but this is not their primary motivation: *fun* is.[55]

Thus we can see that many of the narratives of indie game dev outlined in section 1.4 – namely the indie's commercial aspirations and the sanctity of the

---

[54] http://shmuplations.com/doujin/

[55] Hichibe, Nobushige and Ema Tanaka. "Transforming Fields of Game Development in Japan – A Comparative Study between Doujin Game and Indie Game Development." Presentation on *Slideshare.net*, October 31, 2015. https://www.slideshare.net/nobushigehichibe/151031-replaying-japan2015

indie's artistic vision – neither of which accord with *doujin* creators' views of themselves – have carried over, by way of human actors, into Japanese scenes. We might add two more characteristics of Japanese indies to our list of "indie narratives":

- Indie games efface themselves of their cultural odor in order to be viable products in a global marketplace. (North American indies have this by default; Japanese indies must produce this.)
- Indie games avoid the language-reliant genres prevalent in *doujin* games.

2.5 SNAPSHOT OF A JAPANESE INDIE GAME

Figure 7. Downwell as seen in the documentary Branching Paths (2016).

Ojiro Fumoto's *Downwell* (2015) is through-and-through indie. Intended as a mobile game but released on both iOS and PC, it sold more than 100,000 units in its first month, and was nominated for several prestigious game awards

alongside titles from larger companies.[56]

You play as a humanoid figure falling forever down a well, battling enemies with a gun boot pointed downwards.

The visual aesthetic is retro, recalling the Game Boy's monochromatic 8-bit graphics, albeit accented with red. The game bears many of the hallmarks that align Japanese indies with Western indie: its successful hinging of the game on a single, tightly designed mechanic; its economic aspirations (being on the App Store and Steam and, indeed, making it big); and its creator's participation in a community of mixed Japanese and expatriate fellow indie developers.

Fumoto's own account bears this out: in her profile of Fumoto, Cara Ellison asks him:

> "Why did you start to make games?" I ask.
>
> "Braid and Super Meat Boy – those days when indie games got super popular. I've been playing games since then. I was even playing Cave Story and stuff before then. I've always loved indie games and dreamed of making games for myself. But I always imagined that programming would be way too hard for me." "That's the biggest barrier right?" I say.
>
> "Everyone thinks that."

Fumoto did, in the end, use a third-party engine, GameMaker – another sign that Japanese indies work more like Western developers than *doujin* game

[56] Ferrero, Anne, dir. *Branching Paths [film]*, 2016: 1:19:07.

developers.

In the Q&A after his postmortem on *Downwell* at GDC 2016, Fumoto was asked a particularly revealing question about the fact that he had suspiciously good English and, perhaps, a sneaky New Zealand accent. He answered:

> I lived in New Zealand for five years when I was young, and during that time I got into video games, so naturally I grew up playing non-Japanese games, and even after I went back to Japan, which was when I was around 15, I kept on playing Western games … I've been reading all the English gaming websites since then, and indie games like Ridiculous Fishing, and indie games in general…[57]

Fumoto not only grew up on Western games, but – perhaps more importantly – spoke English fluently and was plugged into English gaming websites. This put him in a different knowledge context than most Japanese game developers – in Mielke's reckoning, freed him from the village mentality – and this led him to take advantage of Western game-making tools and distribution platforms such as Steam. Fumoto, who is (or was in 2014-2015) a regular Tokyo Indies attendee, is now probably the only superstar Japanese indie developer, and thus is a standard bearer for commercial and artistic aspirations acculturated in an English-language context. More will follow suit.

[57] http://www.gdcvault.com/play/1023533/Polishing-the-Boots-Designing-Downwell

2.6 CONCLUSION

The term “indie” has material, historical, cultural, linguistic contingencies that are particular to each context in which the concept is deployed; in other words, we use the same word, “indie,” to describe independent games and game development in the Anglophone sphere as well as in Japan, but this sameness belies the fact that they are two different phenomena, each particular to its circumstances. Nonetheless, indie in the Anglophone sphere and indie in Japan share characteristics – for example, patterns of community-formation, a tendency towards using game engines, and a gravitation to global-market-minded online distribution platforms. This chapter shows that some of these parallels are produced by the actions of specific people described in this chapter, rather than being attributable to universal, essential qualities of independent game development, or to a black-boxed notion of Japanese culture.

This need not be seen as a zero-sum game; indie is not necessarily edging out *doujin*. Yet some developers (see Figure 8) see *doujin* developers turning to indie modes of production and distribution.[58]

[58] Full quotation: “There’s been a paradigm shift in how creators see *doujin*. It’s become less and less about making only what you love and enjoying the process. People want to succeed. They want to hit it big. In that way, I think *doujin* are turning into indies. I don’t really know if this is a good thing or a bad thing for *doujin*” (from the documentary *Branching Paths* (2016) 0:10:53-0:11:15). This is a sharp departure from the attitudes of *doujin* developers described in section 2.4, substantiated by the surveys of Hichibe and Tanaka (2015).

Figure 8. ZUN, creator of the Touhou Project, sees doujin creators as turning into indie creators. Source: still from the documentary Branching Paths (2016).

Is this cultural imperialism at work? Does this change augur a future of globally homogenized indie scenes, all using the same tools to produce works undifferentiated across national contexts? The question of "Japaneseness" deserves to be addressed in all of its complexity – and I will do so later in this thesis – but the purpose of this chapter is to make us more conscientious witnesses of already-occurring changes. Just as we might read these changes as colonial erasure of an indigenous culture, we might also read them as a remedy to the Galápagos syndrome[59] of Japan's domestic game industry.

[59] The hyper-specialized development within Japan of a globally available product, leading to a lack of interoperability between Japan's versions and those developed in the rest of the world. This term was coined when Japan's early mobile phone development outpaced the rest of the world, leading to advanced phones with no use outside of Japan.

In any case, by exposing these dynamics and locating them within their social and historical contexts, as we have done in this chapter, we reach three conclusions:

First**, the form and practices of indie game development communities in Japan are a contingent production of human actors (described in this chapter) and of the behavior-scripting qualities of certain technical artifacts (described in the next chapter – namely game engines).** Following Mizuko Ito, I "argue against the idea that variable technology use is an outcome of a universal technology … encountering a particular national culture." Ito writes that mobile phone usage in Japan "is not a transparent outcome of Japanese culture but emerges from a historically specific series of negotiations and contestations within and outside of Japanese society."[60]

Second**, the emergence of these practices and communities is a contingent and contestable process; awareness of this fact may help organizers prevent biases from being systemically embedded in these still-young communities.** Translator Dan Kanemitsu's thoughts on *doujinshi* creators and consumers are instructive here: "As far as I know, there is no community-based endeavor in Japan that captures such a wide spectrum of society. We have grandparents publishing books with their grandchildren. The sexes are

[60] Ito, Mizuko. "Introduction: Personal, Portable, Pedestrian" in *Personal, Portable, Pedestrian*, edited by Mizuko Ito, Misa Matsuda, and Daisuke Okabe. Cambridge, MA: MIT Press, 2005: 15.

roughly balanced, and the occupational diversity is breathtaking."[61] *Doujin* communities provide a model for how indie communities might present an inclusive, inviting face to newcomers.

Third**, we must counter hegemonic histories of independent, non-commercial, and non-mainstream game development that only recognize "indie."** Such histories reproduce a monoculture within independent games, and render us unable to see that, although the indie phenomenon is new in Japan, independent game development has been happening there for decades. Following Laine Nooney's formulation in her essay on gender in game histories,[62] I don't aim to redefine indie to include *doujin*, but rather to get readers to consider what is revealed by the fact that *doujin* could never have been counted as indie.

[61] http://www.theverge.com/2012/8/21/3238607/japan-comic-convention-market-comiket-summer-2012

[62] "This contribution aims to shift the relevant question from 'Where are the women in game history?' to 'Why are they there in the way that they are?'" Nooney, Laine. "A Pedestal, a Table, a Love Letter: Archaeologies of Gender in Videogame History." *Game Studies: The International Journal of Computer Game Research*, vol. 13(2) (December 2013).

CHAPTER 3

JAPAN AND THE USE OF GAME ENGINES

> …technological universality, rather than being a structural given, is a contingent production of a wide range of actors, including governments, technologists, and scholars.
>
> – Mizuko Ito, *Introduction: Personal, Portable, Pedestrian*, 2005, p. 7

> The power of things does not lie in themselves. It lies in their associations.
>
> – Bernward Joerges, *Do Politics Have Artefacts*, p. 414

3.1 OVERVIEW

In a country where developers have historically shied away from licensing game engines, the very existence of Unity Technologies Japan (hereafter UTJ) is a consequential intervention. Its parent company Unity Technologies, the US-based maker of the Unity game engine, declares its mission as "democratizing game development,"[63] and boasts at the top its product's *About* page: "You can

[63] https://careers.unity.com/

create any 2D or 3D game with Unity. You can make it with ease, you can make it highly-optimized and beautiful, and you can deploy it with a click…"[64]

This framing of Unity is contentious enough when speaking only of the English-language sphere, but when extended to the Japanese sphere, it implies a universality and neutrality that software simply cannot possess. It would follow, from this framing, that Unity's process of acquiring users is natural and inevitable in a place as rich with game development talent and history as Japan, and is even a sign of *progress* of the democratization of game development – implying a teleology aimed at integration into Western pipelines of production and distribution.

It is these narratives that I aim to break down. The chapter begins with an explanation of game engines and their relation to independent game development, making use of Akrich's (1992) concept of the "script" that frames possible relations between users and a technology. It then illuminates Japanese developers' non-use of third-party game engines, putting this in the context of the history of the Japanese game industry. The next section, inspired by the software studies approach of Lev Manovich's *Software Takes Command*, challenges the myth that any tool can be automatically accessible[65] to users across differing linguistic and cultural contexts – or even that it is the same technology across contexts. Rather, we can point to strategic actions that produce this accessibility,

[64] https://unity3d.com/unity
[65] I use the term "accessible" generally to mean "available, inviting, and usable" rather than with specific reference to disability, though these usages do overlap.

as I do in the rest of the chapter: I show how UTJ doesn't fall into a user base, but rather *constructs* a user base by creating locally sensitive documentation, by providing community support, and by inventing a sexed up, Japanese-style mascot: Unity-chan.

3.2 DEFINITION OF GAME ENGINE

Game engines are "the infrastructural software and tools which allow developers to manage the vast complexity of modern games."[66] Game engines collect components – a 2D or 3D graphics rendering system, collision detection system, audio system, networking – under the roof of a single piece of software,

[66] Lederle-Ensign, Dylan and Noah Wardrip-Fruin. "What Is Strafe Jumping?: idTech 3 and the Game Engine as Software Platform." *Transactions of the Digital Games Research Association* 2, no. 2 (2016): 128.

relieving software engineers of the need to create each of these components from scratch.

Figure 9. Typical Unity 5 workspace on macOS. Rightmost section (Inspector) shows properties and attached scripts of the selected FPSController object; bottom-left is the file navigator; top-left is the hierarchy of all game objects; top-center is the WYSIWYG game scene, which starts runtime when the user hits the play button above.

Game engines distinguish themselves among game-making software by being a one-stop-shop capable of carrying a project from inception through the final step of exporting to target platforms. Developers can extend their engines' capabilities with software known as middleware, such as the audio engine FMOD, but middleware on its own is too specialized to earn the designation of game engine. Similarly, less bulky tools such as Twine are not usually referred to as game engines, though there is some gray area: independent game developer

Stephen Lavelle refers to his tiny game-making tools flickgame, plingpling, and PuzzleScript as game engines.[67]

Contemporary, robust game engines such as Unity Game Engine (formerly Unity3D), Unreal Engine, CryENGINE, GameMaker, and RPG Maker exemplify the licenseable third-party (i.e. not "in-house," or developed within a company for its own projects) game engine, whereas Capcom's Panta Rhei and Square Enix's Luminous Engine are in-house engines with a prominent public profile.

3.3 GAME ENGINES SCRIPT THEIR USERS

As an extensible one-stop-shop, engines increase the efficiency of game development. At the same time, different engines have different specializations, and the use of a particular game engine locks the developer into certain technical affordances and constraints – for example, most of the engines listed above allow only 2D *or* 3D graphics, not both; as another example, less-robust game-making software often presumes a target platform where a game will be played (e.g. games made with Twine or in the Flash development environment are largely played in web browsers), and this means that game developers can reliably assume the kinds of displays and input methods for which they should design (say, keyboard-and-mouse or touchscreen). Even a general-purpose game engine like Unity, which prides itself on not prescribing technical or stylistic

[67] https://github.com/increpare and http://www.increpare.com/tag/tools/

characteristics to games made with the tool, can *script*[68] its users, intentionally or not, towards creating certain styles of game by virtue of what types of tutorials are widely available for new users, and what pre-fabricated elements ("prefabs") the engine provides to facilitate rapid prototyping. For example, first-time users can create a playable game scene simply by dragging-and-dropping the first-person "character controller" [69] prefab; Unity saves users from needing to author

[68] This usage, which I adapt from van Oost's (2005) use of Akrich (1992) and expand upon in the next section, shouldn't be confused with the other meaning of *script* in this thesis: in the context of game engines, a *scripting language* is a high-level programming language that lets users customize the behavior of their game and its objects. Where "script" is a noun, it is the latter usage; where "script" is a verb, it is the abstract usage marked by this footnote.

[69] This is the in-engine "camera" object from which the player will view the game, with attached C# scripts that define how it will be controlled by player input.

their own C# scripts, and perhaps due to this ease of implementation, this is a common onboarding exercise for new users.[70]

Beyond prefabs, Unity's default control settings – W-A-S-D keys for forwards-left-backwards-right navigation, and left-click as primary interaction (named "Fire1" in the engine menu – see Figure 10) – are inherited from a legacy of first-person shooter games that were vaulted to prominence in the 1990s by *DOOM*, the game that is the origin of the contemporary game engine. If games are palimpsests showing traces of prior games built on the same foundations, then DOOM is their ur-text.

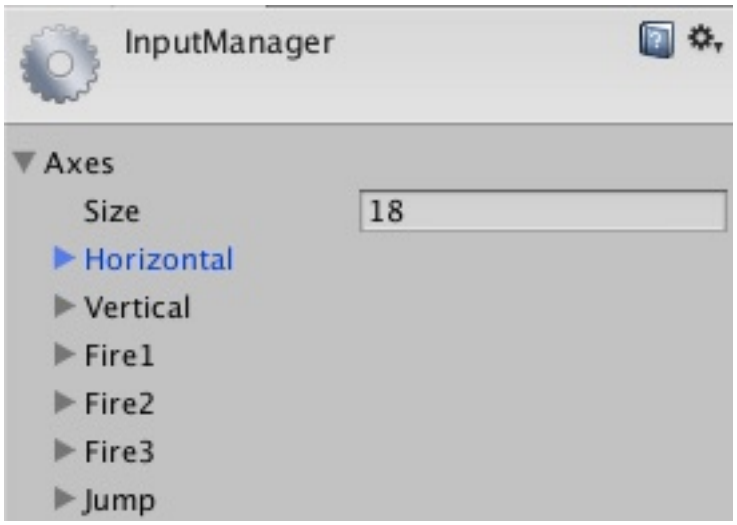

Figure 10. The default Unity 5 control scheme, buried in this menu, is set to WASD. The use of Fire1, Fire2, and Fire3 for primary, secondary, and tertiary actions points to game engines' roots in the first-person shooter genre.

[70] The three most-viewed Unity tutorials on YouTube.com (December 2016) all follow the same pattern: the very first addition, after terrain, is the standard First Person Character Controller.

3.4 THE MEANING OF "GAME ENGINE" HAS CHANGED

What distinguishes game engines as a class of software, and why do I single out Unity in this thesis as the exemplar of a certain vision of how game engines operate? The answers to these questions will provide us with more depth if we look at how the term "game engine" has changed over time.

DOOM (id Software 1993), according to game historian Henry Lowood, was the first to use the term game engine.[71] *DOOM*'s innovation was to separate its core software components (graphics rendering system, collision detection system, audio system) from its art assets, level layouts, and game rules. Other developers began to license games and adapt them into new games by modifying only the art, levels, weapons, and characters, without needing to change the underlying "engine" of the game. This marked the birth of the mod community – individuals and studios who created new games by modifying existing ones with toolkits provided by the original developers.[72] Lederle-Ensign and Wardrip-Fruin note that LucasArts and Infocom employed some separation of data and process in their games – allowing new games to be developed by substituting new data – earlier than id Software, but never licensed it, nor did

[71] Lowood, Henry. "Game Engines and Game History." *Kinephanos* (History of Games International Conference Proceedings) (2014). http://www.kinephanos.ca/2014/game-engines-and-game-history/

[72] Gregory, Jason. *Game Engine Architecture*. Wellesley: A K Peters/CRC Press, 2009, 11.

they have in their vocabulary the engine metaphor, which id created and first revealed in its *DOOM* press release in early 1993[73].

Jason Gregory, in his textbook on game engine architecture, stakes two defining characteristics of game engines: first, "a *data-driven architecture* is what differentiates a game engine from a piece of software that is a game but not an engine"[74] – the same data/engine separation that we have described. The second characteristic of most game engines named by Gregory is a *platform independence layer* that "sits atop hardware, drivers, operating system, and other third-party software and shields the rest of the engine from the majority of knowledge of the underlying platform."[75] This platform independence layer abstracts functionality across platforms, so that developers can create their work just *once* for multiple platforms, without accounting for the ways different types of computers access a network, for example, or access files within their own systems.

The latter characteristic remains a defining feature of contemporary game engines, but the former quotation deserves more scrutiny. How could a game be confused with an engine? The answer lies in this textbook's publication date – 2009. A mere seven years ago, the reigning paradigm of game engines led Gregory to assert that "the line between a game and its engine is often blurry."[76]

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[73] Lowood.
[74] Gregory, 11.
[75] Ibid., 34.
[76] Ibid., 11.

Yet in 2009 there were certainly already many licensable engines not anchored to any particular game release (see, for example, the dozens of games made with Unreal Engine 3 prior to 2009[77]). This apparent blurriness in Gregory's eyes I attribute to a paradigm shift that has occurred in the world of game engines: whereas a game engine used to be seen as *part* of a game (indeed it was, in John Romero's metaphor, the internal *engine* to an external *car*), today, *this relationship is inverted*: the game engine is the parent software, with no limit to the number and variety of children it can have. The game engine is a standalone piece of complex media-authoring software, a member of the family of media software described by Lev Manovich in his *Software Takes Command,* with inherited "*assumptions and models about a user*, *her/his needs*, *and society* encoded in [its] functions and their interface design."[78]

In today's landscape, a game engine is no longer a byproduct of developing games, open-sourced or licensed as a secondary revenue stream; rather, many companies form around the production of a game engine as their primary, original product. Unity is, in this way, emblematic of the current moment in game engines: it doesn't owe its existence to any root game or game series, nor to any of the major lineages of game engine (see Figure 11) – it is its own *creatio ex nihilo*, a clean slate – which is the kernel at the center of its marketing pomp that that you can make "any 2D or 3D game" with Unity.

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[77] https://en.wikipedia.org/wiki/List_of_Unreal_Engine_games
[78] Manovich, Lev. *Software Takes Command*. New York: Bloomsbury, 2013:

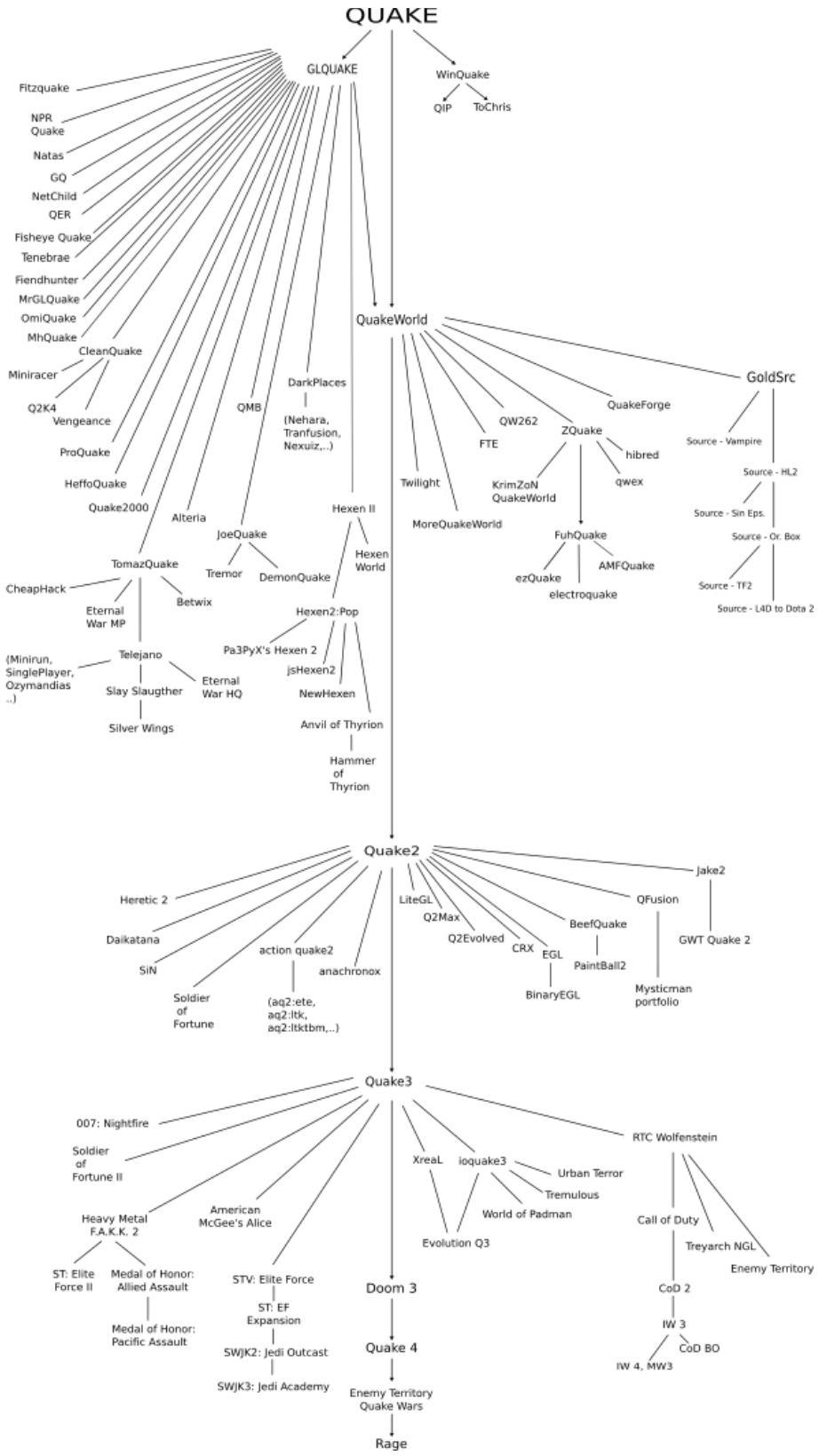

Figure 11. Family tree of Quake-derived game engines and games. Note the Half-Life engines on the right side. Source: CC 2.0 by Tei https://en.wikipedia.org/wiki/Quake_engine#/media/File:Quake_-_family_tree.svg

Unity, of course, did not arise in a vacuum, nor does it let its users create games free of traces of the tool with which they were made. The aforementioned first-person character controller (which Unity renamed FPSController in version 5), though easy to implement, has many detractors[79] who feel it provides imprecise-feeling character control, robs developers of agency in design choices, or who just decry that it is immediately obvious when a game developer has used this character controller: the Unity character controller is unpalatable because it *feels so much like itself*. Game designer and educator Robert Yang wrote of how *Half-Life*'s (1998) GoldSrc engine on his own design sensibility:

> When I'm trying to tune movement physics in other games, am I just trying to replicate the feel of Half-Life because that's what feels 'right' to me? (Unreal Engine games almost all universally feel 'chunky' to me, in comparison. I'm sure people who grow up using Unreal would disagree with me, and argue that Half-Life or Quake-lineage games are too loose.)[80]

Every game engine has a distinct "feel." This feel can, as Lederle-Ensign and Wardrip-Fruin point out, be "traced back to low level decisions in the physics or graphical simulations that form the engine … more than any other single piece

[79] See user bentog's "For Unity users: Stop using the standard Character Controller!" on Ludum Dare's blog: http://ludumdare.com/compo/2013/05/01/for-unity-users-stop-using-the-standart-character-controller/

[80] Yang, Robert. "A Half-Life book: some pillars." *Radiator Design Blog,* July 17, 2013. http://www.blog.radiator.debacle.us/2013/07/a-half-life-book-some-pillars.html

of software, they exert influence over the design of the games and genres that are built on them."[81] Indeed, their essay on the idTech3 game engine details an infamous bug that affects an entire family of engines and games: the code governing friction calculations in the codebase of the original *Quake* (id Software, 1996) contained a bug that allowed players to "strafe jump" – to press directional keys while jumping, causing the player to leap forwards at great speed. Partially because the community of players assimilated this quirk into their play practices before the developers could fix the root cause, id decided to retain the bug – and as a consequence, it was propagated through essentially the entire family tree of engines and games depicted in Figure 11.

The strafe jumping saga tells us that even minor parameters buried in an engine's codebase can have an impact that pervades entire generations of games made with the tool; it tells us that there are certain qualities baked into a game engine, and these qualities script users to adhere to design tendencies not freely chosen. Developers can, of course, defy scripts; many recent exploration-based narrative games (sometimes-derisively called "walking simulators") that feature no violence were, in fact, made with engines designed for first-person shooter games: *Dear Esther* (The Chinese Room, 2012) was originally made with *Half-Life* 2's Source engine, and its follow-up *Everybody's Gone to the Rapture* (The Chinese Room, 2015) used CryEngine, which is for high-end first-person

[81] Lederle-Ensign and Wardrip-Fruin, 132.

shooters. More cheekily, in 2014 a modder made a playable demo of the side-scroller *Donkey Kong Country* (Rare, 1994) entirely in the *DOOM* engine.[82]

Figure 12. Side-scroller Donkey Kong Country *re-created in the* DOOM *engine – subverting the script of what kind of games can or should be made in a given engine. Source: Kotaku, see footnote below.*

Users can reject or adapt the script they are given – but, in the words of sociologist of technology Ellen van Oost, "scripts surely act invitingly and/or inhibitingly."[83] Thus game engines leave an imprint on the games built on them, not because they *must* (see Figure 12), but because what we create with tools tends to be shaped by how those tools were designed in the first place.

[82] http://kotaku.com/modder-puts-donkey-kong-in-doom-turns-game-into-a-plat-1633389752

[83] van Oost, Ellen. "Materialized Gender: How Shavers Configure the Users' Femininity and Masculinity." *How Users Matter: the Co-construction of Users and Technology*, eds. Oudshoorn, Nelly and Trevor Pinch. Cambridge: MIT Press, 2005. 196.

3.5 WHY THIS MATTERS FOR INDEPENDENT GAME DEVELOPMENT

Accessible game-making tools have played a huge role in the flourishing of independent game creation of the past decade. Twine has welcomed swathes of uninitiated users with its open distribution model and its reference materials and user experience oriented towards non-coders[84]; the Unity game engine (as well as Unreal Engine 4, increasingly) has enticed millions of users with its free-to-use basic version and its agnosticism towards target platform, towards dimensions (2D/3D/VR/AR) and towards game genres realizable with the engine. In his work on non-commercial game designers in Japan, researcher Kenji Ito explores how the existence of the game-making tool RPG TKool (RPG ツクール, *RPG Tsukūru*) – known as RPG Maker in English – gave rise to thriving communities of amateur game creators. In a country where commercial game developers have long been reluctant to use tools made by third parties, Ito stresses that these amateur designers – few of whom care about monetization and professionalization, similar to the *doujin* creators described in Chapter 2 – are capable of creating games that commercial game companies cannot, and thus sees noncommercial creators such as these as a potential antidote to industry stagnation.[85]

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[84] Friedhoff, Jane. "Untangling Twine: A Platform Study." *Proceedings of DiGRA 2013: DeFragging Game Studies* (2013).

[85] Ito, Kenji. "Possibilities of Non-Commercial Games: The Case of Amateur Role Playing Games Designers in Japan." In *Worlds in Play: International Perspectives on Digital Games Research*, edited by Suzanne De Castell and Jennifer Jenson, 129-142. New York: Peter Lang Publishing, 2007: 10.

The 2015 Game Developers Conference (GDC) was a landmark in the game engine turf wars. Unreal had been the premier licensable 3D engine, serving mainly enterprise clients; Unity had been, since its creation, the engine for independents first and foremost. But Unity crept from 2009 to 2015 into commercial client territory, making deals with Ubisoft, Warner Bros., Nexon, Cartoon Network, Coca-Cola, Disney, Electronic Arts, LEGO, Microsoft, NASA, Nickelodeon, Square Enix, Obsidian, and had also become the default software development kit for Nintendo's Wii U. Unreal, which did not have a free version, was not making corresponding inroads in the independent space.

This changed in March 2015. Unreal switched to a free-to-download model, with a 5% royalty owed only after the first $3000 of revenue; this move appeared to be the nuclear option for Unreal's developer, triggered just one year after they dipped their toes into the indie market by offering their product for a $19 monthly fee.[86] Unity, who have offered a free version since 2009 (originally called Unity Indie[87]), revamped its Pro and full-featured Free packages – charging for the Pro version, but with no royalties on either version – and released their new 5.0 version. Valve joined the party by announcing their Source 2 engine, and making it available free *and* royalty-free to all content developers.[88]

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[86]"If you love something, set it free." *Unreal Engine Blog*, March 2 2015. https://www.unrealengine.com/blog/ue4-is-free

[87] Haas, John. "A History of the Unity Game Engine." Thesis, Worcester Polytechnic Institute: 24. https://web.wpi.edu/Pubs/E-project/Available/E-project-030614-143124/unrestricted/Haas_IQP_Final.pdf

[88] http://www.valvesoftware.com/news/?id=16000

Figure 13. Game Engine Market Share, 2015. Unnamed "closest competitor" is Unreal Engine. Graphic source: https://unity3d.com/public-relations Data source: Unreleased McKinsey report.

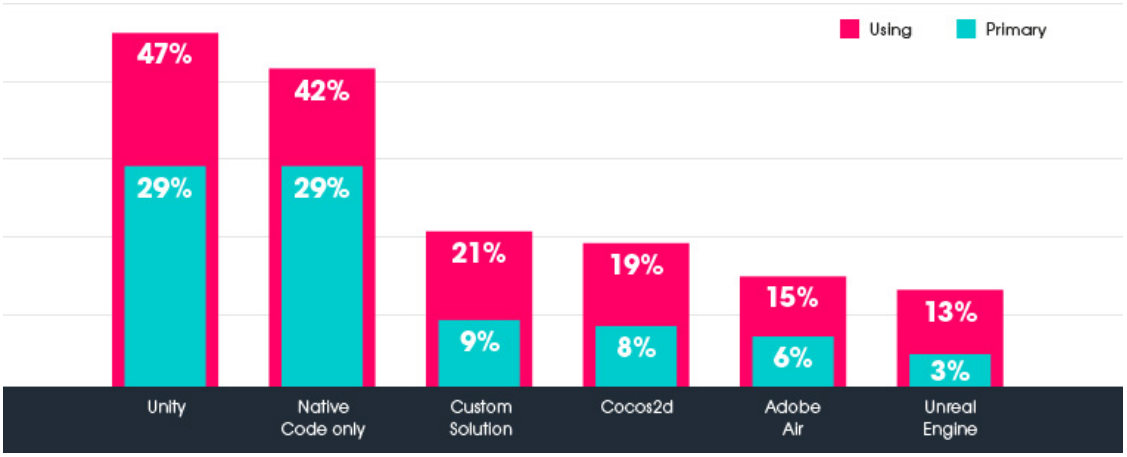

Figure 14. Engine usage survey of 10,000 developers. Graphic source: https://unity3d.com/public-relations Data source: Vision Mobile, Developer Economics, State of Developer Nation Q3, 2014

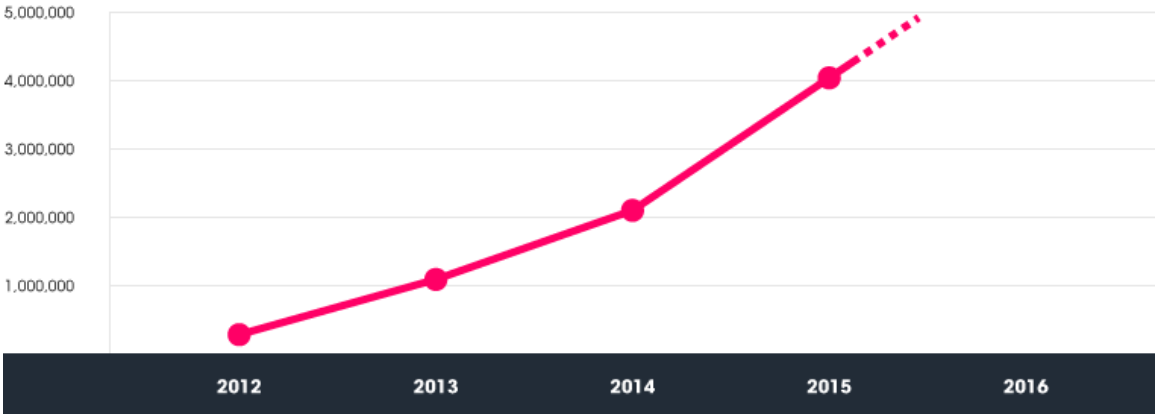

Figure 15.Number of Unity Registered Users. Source: https://unity3d.com/public-relations

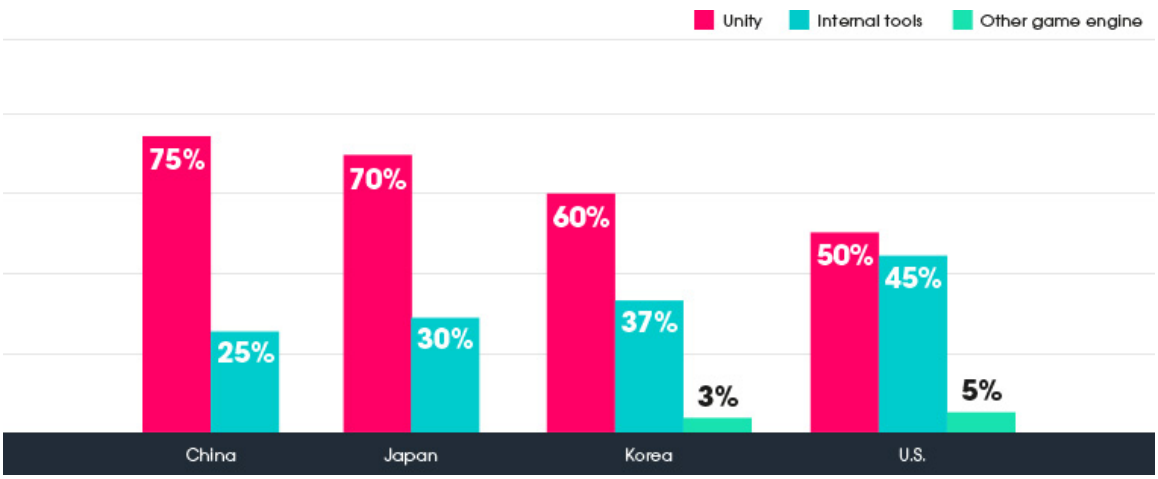

Figure 16. Engine Share of Top-Grossing Mobile Games by Territory. 2015. Source: https://unity3d.com/public-relations

Crytek, too – makers of the high-end CryEngine – announced one year earlier a royalty-free subscription for $10 per month, with the explicit purpose of chasing indie users – their engine would be, in the words of their press release, "accessible to a vast new audience."[89]

This was a race to the bottom,[90] and it's not yet clear which players will come out on top. (Crytek, for one, will not: Amazon launched the free Lumberyard engine built upon the foundation of Crytek's tech, but the $50 to 70 million licensing fee paid by Amazon wasn't enough to keep the makers of the blue-chip CryEngine from closing five of its studios in 2016.) Yet if you listen to the words of the engine makers and the press, you might instead think of this as a race to democratize – to make good on these companies' goal of "making game development universally accessible"[91] – especially Unity, which includes democratization in its mission statement.

This narrative is not unique to video games: create a tool with lowered barriers-to-entry, and you'll trigger a more inclusive, more democratic explosion of creative activity. In the music production world, digital audio workstations (DAWs) are the rough equivalent of game engines: software for recording, editing, and producing audio files. Professional-grade DAWs are expensive –

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[89] https://www.cryengine.com/news/crytek-announces-its-cryengine-as-a-service-program

[90] See, for example, http://www.develop-online.net/news/there-s-no-going-back-as-top-game-engines-race-to-the-bottom/0191833 and http://www.pocketgamer.biz/comment-and-opinion/64198/a-messy-history-of-game-engines-offers-a-warning-for-the-future/ .

[91] http://www.theverge.com/2015/3/3/8142099/unity-5-engine-release

prior to 2011, Logic Pro cost $499 – and their complexity also keeps them out of most people's hands. Apple, however, has long bundled its GarageBand DAW with every new Mac computer, and even released the DAW on mobile devices in 2011; this ubiquity, in combination with its ease of use, led to what one writer called "GarageBand's most provocative impact: a digital force for democratization in music."[92] An essay on Pitchfork surveys musicians who speak of the "feminist implication" of the DAW encouraging women to pursue something that had seemed out of reach, and of how the program helps many get past the "machismo of software." GarageBand suffers a prestige deficiency in ways reminiscent of Unity – it is subject to derision from those who sneer at users of the less robust, less professional "gateway DAW" – but the overwhelming consensus is that GarageBand has welcomed many who would otherwise have been deterred from music production, especially women:

> Through the years, the program has become the tech-averse musician's way of crossing a digital divide where Pro Tools certifications, gear-talk at Guitar Center, and the coded gender of technology often blocks their path.[93]

And yet notice a pattern in the blockers listed in that quotation:

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[92] Tavana, Art. "Democracy of Sound: Is GarageBand Good for Music?" *Pitchfork*, September 30, 2015. http://pitchfork.com/features/article/9728-democracy-of-sound-is-garageband-good-for-music/

[93] Ibid.

- "Pro Tools certifications" (the gatekeeping of costly professionalization hurdles)
- "gear-talk" (the gatekeeping of ostentatious expertise)
- "the coded gender of technology" (the gatekeeping of a structurally exclusive culture)

Each of these is mostly external to the software itself. This process of "democratization" is, after all, not just a matter of dropping the software into the laps of users-to-be; it is a matter of changing or creating the network of actors associated with the software. In the case of Unity, this includes engine documentation, the community found in Unity's forums and other forums, product evangelists who give workshops and attend community events, marketing material to appeal to non-users, and a lively market of secondary content creators who populate Unity's Asset Store.

The narrative that the flourishing of independent games is a result of the democratization of tools, then, is a simplistic causal fallacy. We know this because of the precedent cases of networks of "home brew" developers and "bedroom" coders described by Paolo Ruffino[94]; we know this from accounts of the success of Twine by Friedhoff, Harvey, and others; and we know this because of the precedent of thriving networks of *doujin* game creators I described in Chapter 2. What game engine makers and the press are referring to when they speak of democratization is, in fact, a process of the intentional

[94] Ruffino 2013, 107.

production of a particular culture of independent game development, always particular to its time and place.

And yet the contexts in which this production takes place are not always receptive. The next sections describe the case of Japanese game developers' suspicion of third-party tools and the possible consequences of "not-invented-here syndrome."

3.6 ISLAND NATION, GLOBAL INDUSTRY: WHY JAPAN HAS STUCK WITH DOMESTIC PRODUCTION METHODS

It is cliché, by now, to fret over why the once-titanic Japanese game industry is now "on the brink of global irrelevancy."[95] Keiji Inafune, former Capcom head of game development and creator of *Mega Man*, announced at the 2007 Tokyo Game Show – an event that's usually all ballyhoo – that Japan's developers were "at least five years behind" their Western counterparts, and that of the companies exhibiting at TGS, "everyone's making awful games."[96]

James Mielke, game developer and journalist who founded Japan's indie games festival BitSummit, places the blame on the shift from arcade hardware to today's powerful consoles:

> Sega was able to make their games on the most powerful graphics hardware available, but then arcades started dying down and

[95] Consalvo, Mia. *Atari to Zelda: Japan's Videogames in Global Contexts*. Cambridge: MIT Press, 2016: 151.

[96] Ibid.

> people started playing less in arcades and started playing at home because the consoles were getting stronger. So when the Xbox came out with distinctly PC architecture, all these Western developers who were used to developing for PC suddenly had this uniform platform.[97]

Western studios like *Halo* creator Bungie grew more efficient at producing high-budget games on powerful hardware, while Japanese developers languished in the previous generation, since the architecture of PlayStation 3's Cell processor was notoriously difficult to program for, and the Xbox 360 had made little headway in Japan. This situation hamstrung Japanese developers while their Western counterparts shot ahead, in Mielke's estimation.

This is a satisfying analysis of trends during the most recent generation or two of game console, but if we look further back into the origins of the Japanese game industry, we may find some answers with double explanatory power: what explains Japan's early successes *also* explains their current slump – and may even explain resistance to third-party game engines. Scholars Yuko Aoyama and Hiro Izushi assert that the evolution of the Japanese video game market is inseparable from its particular economic and cultural context:

> We argue that the cross-sectoral transfer of skills occurs differently

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[97] Byford, Sam. "Japan used to rule video games, so what happened?" *The Verge*, March 20, 2014. http://www.theverge.com/2014/3/20/5522320/final-fight-can-japans-gaming-industry-be-saved

> depending on national contexts, such as the social legitimacy and strength of preexisting industries, the socioeconomic status of entrepreneurs or pioneer firms in an emerging industry, and the sociocultural cohesiveness between the preexisting and emerging industries. Each country draws on a different set of creative resources, which results in a unique trajectory. … Japan's video-game industry emerged out of corporate sponsorships in arcades, toys, and consumer electronics industries and drew skills from the comic book and animated-film sectors…[98]

Japanese companies such as Nintendo, they argue, were able to draw on larger talent pools in design and consumer electronics in order to develop games and game hardware; further, Japan had tremendous comic book and animated-film sectors from which to draw talent. These unique assets vaulted Japan to a position of great prominence early in the development of the global industry *and* allowed platform developers to facilitate "fledgling software startups through financial assistance and early disclosure of platform specifications."[99]

These early strengths ossified into tendencies that now drag the industry down. While Western developers took advantage of the increase in console

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[98] Izushi, Hiro and Yuko Aoyama. "Industry evolution and cross-sectoral skill transfers: a comparative analysis of the video game industry in Japan, the United States, and the United Kingdom." In *Environment and Planning A*, no. 38 (2006): 1843.

[99] Aoyama, Yuko and Hiro Izushi. "Hardware gimmick or cultural innovation? Technological, cultural, and social foundations of the Japanese video game industry." *Research Policy* 32 (2003): 431.

power mentioned by Mielke, moving in a photorealistic direction, Japanese developers pressed on with their more traditional visual techniques, having assumed that the Japanese preference for anime-style graphics would hold true in other markets around the world. It didn't, and "Japanese companies have had to adapt to a wider palette of tastes or plan for more limited sales abroad."[100]

It's not only visual appearance that keeps the Japanese game industry so cloistered: some of the most prevalent game genres in Japan, including the entire family of genres under the umbrella of visual novels, are so reliant on language and so infused with "cultural odor" that the few localizations that *do* exist tend to be fan translations, done by and for people who inhabit the same niche.

This cloistering reproduces itself in the classroom. José P. Zagal interviewed game design and development teachers in Japan and found that they see the non-Japanese game industry as more open in the sense of sharing common technologies (e.g. game engines) and expertise (e.g. through books and online forums); Japanese game developers, it is implied, shelter their own resources within their in-groups, and rely on institutional knowledge within their own organizations rather than seek it elsewhere. Zagal's interviewees were in agreement that their students should learn to code games from the ground up:

> Jun, who teaches programming and other technical courses, gets to the issue he's most worried about, "in order to study from the

[100] Consalvo 2016: 167.

> beginning, it takes quite a long time. So the students are facing difficulties developing games". He continues, "Flash and Actionscript, they are important for education in computer games because they can eliminate a lot of excess procedures in order to get graphics". However, he then wonders if they'll be able to develop their own technologies. Kazuya seems to share this opinion as well, he is adamant that "we try to teach students so they can start from scratch and not use middleware to complete the game". At his institution, they have explicitly detailed two tiers. "The bottom layer is the tools and framework, and the top is the game layer" he says. Kazuya adds that even if students are interested only in the game layer, "they still have to know the bottom layer, what it takes". This concern regarding middleware seems to parallel one of the reasons that has been given to explain the decline of the Japanese game industry: they relied too long on closed-proprietary systems while the rest of the world rapidly adopted middleware solutions.[101]

Despite their insistence that their students learn how to code a full stack from scratch (i.e. framework as well as game layer; and it should be noted that this is a common view among Western game educators as well), both teachers betray

[101] Zagal, José. "Understanding Japanese Games Education." *Proceedings of DiGRA 2013: DeFragging Game Studies* (2013): 9.

an anxiety that this additional labor may leave their students in the dust of a breakneck market. The next section looks at what *can* happen when developers adhere to these conservative methods.

3.7 "NOT-INVENTED-HERE SYNDROME" CONTRIBUTED TO SQUARE ENIX'S FINANCIAL CATASTROPHE

The fiscal year ending March 31, 2013 should have been comfortable for Square Enix: they had recently released *Hitman: Absolution* and launched a new IP in *Sleeping Dogs*, and finally came out with the highly anticipated *Tomb Raider* (2013) reboot. And yet the one-pager released to shareholders on March 26 announced an "Extraordinary Loss" – ¥10 billion, or just over $100 million.[102] Square Enix CEO Yoichi Wada resigned. This moment was not caused *solely* by the company's misadventures in in-house engine development, but it did occur in 2013, squarely in the middle of a six-year drought of new Final Fantasy installments caused by Square's forays into engine development.

Square Enix began production on their Crystal Tools in August 2005, initially only for *Final Fantasy XIII*. They decided to expand the project into a company-wide engine in order to integrate and share resources efficiently across the entire company, hoping to economize on the rising costs of each individually-developed project – hoping for the fabled efficiency that comes with an engine

[102] http://www.hd.square-enix.com/130326.pdf

generalizable to multiple projects.[103] A new Research & Development Division, headed by engineer Taku Murata, was formed expressly to work on the engine. The decision to develop a generalizable tool at the same time as a flagship title caused massive delays, not only for *Final Fantasy XIII*, which did not end up being released until 2009, but also for *Final Fantasy XV,* which was released *ten years* after its announcement. There were many bottlenecks along the way: because of how delayed *Final Fantasy XIII* had become, the developers released two *FFXIII* spin-off titles recycling the same assets, also using Crystal Engine; and because a new generation of consoles was released during the span of *Final Fantasy XV*'s delay, Square Enix created a successor engine to Crystal Tools, named Luminous Studio, and rebuilt the entire *FFXV* project in this next-gen engine.

After the troubled production of *FFXIII*, Square Enix's team consulted with their European subsidiary Eidos in order to more closely adapt a Western style of game development, including the introduction of monthly schedules and project milestones;[104] they also farmed out some of the production to a for-hire studio.

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[103] Taku Murata 2008 GDC talk, "スクエニ村田琢氏、「ホワイトエンジン」改め「Crystal Tools」を正式発表:「The Technology of FINAL FANTASY」、質疑応答も全文収録!!" http://game.watch.impress.co.jp/docs/20080225/gdc_cry.htm

[104]『FFXIII』から『FFXIII-2』へと進化したゲーム制作手法とアジア地域での『FF』シリーズの展開【GDC 台北】 http://www.famitsu.com/news/201206/28017122.html

Because of the significant delays, Square released many fewer games during the PS2-to-PS3 generation transition, and the Kingdom Hearts franchise skipped an entire generation. *FFXIII*'s producer Yoshinori Kitase went so far as to say publicly that creating a brand new engine for the game "may have been" a mistake.[105] Square tested the waters of third-party engine licensing by employing Unreal 3 for their 2009 title *Last Remnant*, and after this, apparently decided to go all-in: for the upcoming *Kingdom Hearts* 3, they dropped Luminous Studio entirely and transferred the project to Unreal.

There is a mocking term, in computing, for the reinvention-of-the-wheel that sometimes happens when a team avoids using externally developed tools: "not invented here" (NIH) syndrome. There are many reasonable justifications for the NIH outlook, but in this case, it led them into a gambit, made in the name of efficiency, that ended up costing them years of work.

[105] http://www.gameinformer.com/b/news/archive/2010/03/10/crystal-tools-may-have-been-a-mistake.aspx

3.8 THE INTERVENTION OF UNITY

> The establishment of the Unity Technologies Japan office and the addition to our company of such a knowledgeable, passionate team further cement Unity Technologies' commitment to democratize games development globally.
>
> – Former Unity Technologies CEO David Helgason, September 6, 2011 press release[106]

We established in section 3.6 that what game engine makers and the press are referring to when they speak of democratization is, in fact, a process of the intentional production of a particular culture of independent game development, always particular to its time and place. How do non-users become users? For an answer, I look to Trevor Pinch's study of how the Minimoog was sold to rock musicians: "Often the answer is that manufacturers 'invent' the user to go along with their technology."[107] The rest of this section is split into sub-sections about some of the ways that Unity Technologies Japan (UTJ) creates and configures its users in the Japanese context: by localizing documentation; by creating publics through community formation and moderation; by employing region-specific product evangelists; by inventing the kawaii mascot Unity-chan

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[106] http://www.marketwired.com/press-release/unity-technologies-expands-into-japan-with-opening-new-subsidiary-unity-technologies-1557499.htm

[107] Pinch, Trevor. "Giving Birth to New Users: How the Minimoog Was Sold to Rock and Roll." *How Users Matter: the Co-construction of Users and Technology*, eds. Oudshoorn, Nelly and Trevor Pinch. Cambridge: MIT Press, 2005: 247.

and freely distributing high-quality 3D models of her to users; and finally – most subtly – by configuring users as uniform-across-linguistic-contexts through the interpellation implicit in the word-for-word translation of marketing copy across their website.

3.8.1 Translated documentation

Figure 17. Unity's documentation in Japanese. Source: https://docs.unity3d.com/ja/current/Manual/UnityManual.html

There is *only* an English-language release of Unity, so it is crucial that the documentation is translated with a to-the-word correspondence between English and Japanese. Every bit of Unity's famously thorough engine documentation is

translated into Japanese, including the scripting reference. Each tutorial offered in English is offered identically in Japanese, without regard to culturally specific visual aesthetics or genres of the original English tutorials.

This translated documentation (Figure 17) brings Japanese developers without technical English comprehension into the fold.

3.8.2 Community formation and moderation

Support communities can create publics by connecting otherwise disconnected networks of developers:

> A new type of authorship can be considered when the tools of production are commoditized for the purposes of a new individual type of creative expression. Developers that create products that synthesize the tools of production (such as a SDK for a game engine) empower their audience to create their own games. Furthermore, the (generally volunteer driven) support communities for these tools that exist online provide a natural congregation of developers and gamers alike, potentially positioning these tools as the nodes for a network of otherwise disconnected publics.[108]

Unity only has one official forum, and its language is English. UTJ employees, however, created and continue to moderate an invite-only Facebook group called “Unity ユーザー助け合い所” (“Unity Help Group”) – nearly 8,000

[108] Martin and Deuze 2009, 281.

members as of December 2016; it's an active group, with dozens of detailed posts weekly, each usually receiving a handful of responses.

3.8.3 Evangelists

UTJ employs two Product Evangelists, Hiroki Omae and Keijiro Takahashi, and one Community Evangelist, Nobuyuki Kobayashi[109] – each of whom has a different public role. Omae manages the online communities and attends indie developer meetups in Tokyo; the frequency with which I encountered him when I lived in Japan for just six months in 2014 speaks to how ubiquitous he is at community events.

Kobayashi has the sort of public profile you would expect of a community evangelist: he travels to community events and forums and gives educational presentations, and he posts his many slide decks on his public slideshare.net page.[110]

Takahashi creates technically impressive doodles within Unity and tweets GIFs of them; some of these go viral, and this surely draws eyes to Unity as a creative outlet for Japanese people. He also populates UTJ's and his own github accounts with free-to-use art assets, scripts, and demo games, thus providing prospective Japanese users with inviting raw materials.

[109] http://japan.unity3d.com/company/people/
[110] http://www.slideshare.net/nyaakobayashi/presentations

It may seem trivial to document the ephemeral web presence of these three people, but for existing users and future users of Unity, these evangelists provide the only accessible entry points to an otherwise obscure, English-language ecosystem. They are also involved in creating and promoting the asset detailed in the next section – Unity-chan.

3.8.4 The invention of Unity-chan

Figure 18.Slideshow at event introducing Unity-chan to the world. Source: http://www.siliconera.com/2014/04/15/unity-japan-introduces-mascot-unity-chan-made/

Unity-chan is a mascot for the engine, released at Comiket 85 in December 2013. UTJ evangelist Omae and designer ntny realized that it would be better to have a cute character available to users of Unity, but none existed – so ntny created Unity-chan. She is depicted on the right in Figure 18 beneath the

text: “HEY WORLD, THIS IS JAPAN! How easy to understand! This visual tells just what the hell Unity-chan is.” But what does it tell us, exactly? Unity-chan is vaulting over an edge in the same position as the man in the Unity promo picture on the left; Unity-chan, then, recalls the engine/data separation described in section 3.4: the same underlying engine, but with the data – the visual manifestation – stripped and replaced with a distinctly Japanese representational idiom. She seems to suggest that the “last mile” to bridge before Unity can work as a Japanese tool is a superficial art-asset swap.

Unity-chan is also a free, high-quality 3D model, rigged for animation and ready for importation into Unity. She serves, then, three essential functions:

- to be a promotional mascot – a character identified with a city – or a school, or company, or what-have-you – in order to create a memorable emotional anchor to whatever is being promoted.
- to provide assets (3d model, animation + rigging, a pre-described character) to facilitate prototyping and game-making for Japanese users.
- to broadcast, especially to Japanese non-users, that Unity is a platform with locally relevant content. This is important for UTJ to stress, since Unity does not start from a position of great appeal to potential Japanese users – in terms of favored genres, what’s available in the Asset Store (few items in “Japanese” representational idioms), and the language of the engine interface.

And yet, on the third point, this is not all that Unity-chan broadcasts: she also configures the user as someone interested in manipulating the virtual body of a scantily clad, chesty, thin woman who manages to show off her crotch in an amazing number of the promotional images (see Figure 19). At the event announcing Unity-chan, the designer ntny said that her being in a bathing suit was his favorite part about her; his colleague Omae added jokingly that "For better or worse, it's probably the best element that represents Japan."[111]

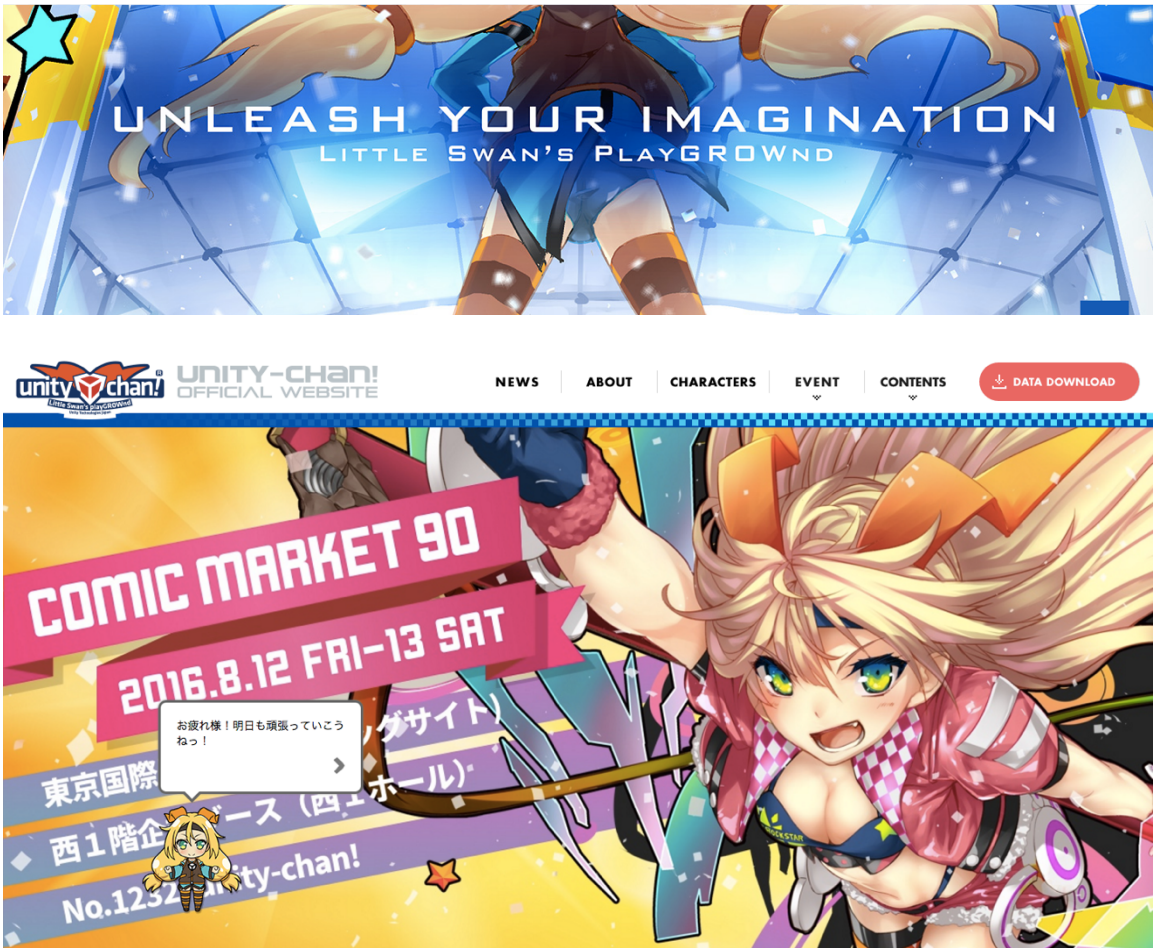

Figure 19. Images from Unity-chan's official website. Source: http://unity-chan.com/

[111] http://www.siliconera.com/2014/04/15/unity-japan-introduces-mascot-unity-chan-made/

It should be noted that users are actually using Unity-chan models in games. In the video cataloging all *doujin* games at the most recent Comiket (C91, in December of 2016), the very first game showcased is an over-the-shoulder shooter featuring Unity-chan, wielding an AR-15 assault rifle, mowing down zombies.[112]

3.8.5 Interpellation

Similar to the multilingual technical documentation (see 3.8.1), Unity maintains its entire website in parallel Japanese and English. A curious effect emerges from pairings such as this:

[112] https://www.youtube.com/watch?v=YfNHrTiniWg ; The creator's website has more than one game made with Unity-chan: http://enzian.web.fc2.com/w.html

Figure 20. "Build once, deploy anywhere" page from Unity's website, in parallel English and Japanese.

The command "build once, deploy anywhere" interpellates us – constitutes us as subjects – but it does so in two different languages, presumably to two

audiences in different linguistic and cultural contexts; and furthermore it addresses us in relation to a technology. The interpellation, then, produces a perception of universality on several dimensions: it papers over any distinctions between how English readers and Japanese readers might engage with this technology; and it also erases any differences in where each individual subject stands in relation to the listed target platforms: for instance, a Japanese subject has a different position relative to the Xbox platform than most English speakers, since Xbox has always been a nonstarter in Japan.

The effect of this interpellation, ultimately, is to produce a fictitious universality: what Adrian MacKenzie calls "software for 'human beings.'"[113] There is no universality in software, not least because software relies on culturally specific practices of numbering, enumerating, and sorting[114], but also because the contexts in which these commands hail us and invite us to "deploy" are so transparently different between the two languages.

The entire commercial enterprise of bringing Unity to the Japanese environment that I have described in this chapter ultimately has this same interpellating effect – "Look, Japan, Unity is yours as well!" – even if not quite as starkly as in this pair of screen captures.

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[113] MacKenzie, Adrian. "Internationalization." In *Software Studies: A Lexicon*, ed. Matthew Fuller. Cambridge: MIT Press, 2008. 155.

[114] Ibid., 157-159, for a discussion of ethnomathematics.

3.9 CONCLUSIONS – EVERYTHING BUT THE BASEBALL FIELD

We've learned from this analysis that the refrain from the 1989 *Field of Dreams*, "If you build it, they will come" is a woeful oversimplification – unless Kevin Costner's character heard the word "it" not as the baseball field itself, but as the sociotechnical network surrounding it: signposts, documentation, fan communities, ticket marketing and distribution, and widely understood conventions governing the roles of producers and consumers within the "field" network. Selling Unity in Japan was never about dropping an already-optimal product into the laps of users, with the assumption that adoption would follow; it was about *creating* new users by changing an entire network of circumstances around the engine: creating documentation in a new language; hiring evangelists to go to existing events and spaces to show developers that they are already Unity users, they just don't know it yet; and by showing non-users Unity content (i.e. Unity-chan) that tells them that this foreign technology is, in fact, relevant to their cultural subject position.

In this chapter, I took issue with Unity's marketing copy about being able make any game you want. In the end, I have no problems with this copy (ads will advertise, after all) – but rather my problem is that one's choice of tools is political, and there are real stakes in one's choice to use (or not use) a particular game engine. Engines script their users' choices in ways influenced by the lineage of media software from which they inherit their interfaces and functions, and in the variety of platforms and markets they allow their users to target.

THESIS CONCLUSION:

JAPANESE INDIE GAMES AS GLOBAL COMMODITIES

The past chapters are instructive not only about independent game development in Japan, but about independent game development at large; drilling down into a very specific context can, through a process of defamiliarization, allow us to re-examine cultural or technical factors that may have seemed universal or natural, and see these contingencies for what they are: phenomena that could have been otherwise.

Yet the contribution of this thesis is to reveal the historical and material particularities of one very specific scene – Japanese independent game developers – to identify what human and nonhuman actors are making changes, and what the political stakes of those changes might be. This analysis answers the call of many game scholars for more situated accounts of local game development practices[115]. Beyond the academic world, there is a widely recognized rift between the global game market and Japan's domestic market for games, often attributed to lack of mutual awareness or essential cultural difference, and popularly cited as evidence of the declining relevance of Japanese games.[116] This thesis provides an alternative vision supported by the case of *doujin* games, whose value is gauged neither by broad palatability nor by

[115] For calls-to-action for local studies of Japanese game development, see Consalvo 2016, 218; Picard 2013, paragraphs 3-4; Picard and Pelletier-Gagnon 2015, 2; about local studies within global game studies generally, see Aslinger and Huntemann 2013, 4; for calls for indie game studies, see Parker 2013b, 8.
[116] Shea 2016, Byford 2014.

global commercial success; in this vision, Japanese "cultural odor" is not a sandbag to be shed on the way to the assumed goal of global acclaim and sales, but rather is a tool employed differently by indie and *doujin* game developers – in the words of Mia Consalvo, Japaneseness is "a signaling device – a signifier that can be deployed strategically in a multitude of ways," such as as a marketing rhetoric in the vein of the Japanese government's extensive soft-power initiative Cool Japan.[117]

It is part of the purpose of this thesis to show that the heart of indie's intervention in Japan is not an aesthetic shift, nor a shift in any superficial signifiers of Japaneseness, but rather a structural shift: in modes of distribution, in commercial aspirations, and in an orientation towards global markets. This shift is helped along by the increasing use in Japan of game engines, one of whose key affordances is the ability to export effortlessly to multiple computing platforms, most of which are associated with global distribution platforms, often digital: Apple's App Store, Google's Play Store, Playstation, Xbox, PC and Mac (which afford access to Steam and other global platforms for purchasing games) – as opposed to other, more locally-bound venues where Japanese consumers are used to acquiring games: brick-and-mortar retailers and second-hand shops in the case of mainstream games, and conventions (such as Comiket) and *doujinshi* stores in the case of *doujin* games.

[117] Consalvo 2016, 217.

This could be seen as a form of progress, if game developers have access to broader venues to materially support themselves; but we should be skeptical of historical narratives of the *progress* of Japanese game development, which (even from otherwise perspicacious authors) often problematically reify cultural origins:

> Japanese games have a genuine uniqueness to them, in much the same way American, British and French games all once had distinct qualities (though tend to be more homogenized today). Games may have started in America, but Japan very quickly saw the technology, assimilated it, made some adaptations, and began producing something divergent. *Wizardry* and *Ultima* started in the West and captivated a Japanese audience, who then went on to produce an eclectic array of strange RPGs for computers, before *Dragon Quest* and *Final Fantasy* cemented the genre tropes, which eventually evolved into RPGs such as *Suikoden*, mentioned earlier. This dark age of JRPGs, prior to *Dragon Quest*, is almost like a «Cambrian Explosion», with strange and exotic experiments.[118]

Readers of this thesis will, I hope, not walk away with the idea that *doujin* games existed as the natural, indigenous form of independent game development until corrupted by the arrival of Western-derived indie ethos and

[118] Szczepeniak 2015, 28.

methods – a narrative reliant on the naïve, West-to-the-rest understanding of globalization, cultural essentialism, and other untenable assumptions. More productive than thematic analyses that tend to reproduce a monolithic Japaneseness[119] are explorations of the factors often downplayed in such analyses: accounts of "the changing political and social contexts in which games are made, sold, and played." [120]

Thus I provided the story of indie and *doujin* game development in Japan, of game engines in Japan, and of the activities of one commercial entity, Unity Technologies Japan, in its quest to establish an audience for its game engine from scratch. Key takeaways from each chapter include:

From the analysis of indie game development in the first chapter, we learn that indie is a culturally and temporally specific aesthetic project – one that carries with it cultural and political baggage.

The second chapter delineates indie and *doujin* game development in Japan. The radically different course of development that established *doujin* game scenes have taken, when compared to young indie ones, suggest alternative futures for indie within Japan: scenes that are more inclusive of gender diversity, for example, or a less oriented towards commercial sale. Further, this history of non-mainstream, largely non-commercial game development within Japan provides a counter to hegemonic histories of

[119] Consalvo 2016, 4.
[120] Ibid.

independent games that are unaccustomed to recognizing *doujin* games as one of their own.

The third chapter presents the case of Unity – the game engine most emblematic of trends in current-day all-purpose engines – and its introduction and promotion in Japan, where game developers historically haven't used game engines. This case study supports the notion that one's choice of tools is political – not only because game engines affect the ways people make games, but also because they influence how creators distribute them and relate to domestic and global industries.

Ultimately, Japanese independent games, *doujin* included, are commodities in a globalized world. The advent of indie in Japan is not an incursion upon an inherently Japanese practice (indeed, we must work against the illusion that there is anything stable that inheres in Japaneseness – a construction that, nonetheless, has its uses). Rather, what indie brings to independent game development in Japan is a reorientation towards a global market, and a revaluation of games as global commodities.

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